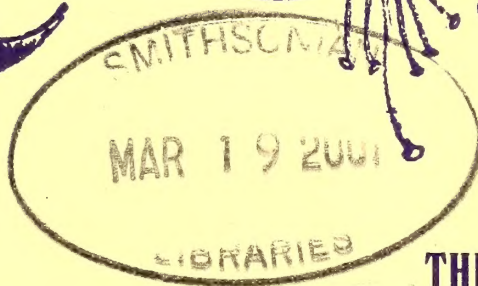


PUBLISHED BI-MONTHLY

Vol. 113

Part 1



THE
ENTOMOLOGIST'S RECORD
AND
JOURNAL OF VARIATION

Edited by
C.W. PLANT, B.Sc., F.R.E.S.

Assistant Editors
R.A. JONES, F.R.E.S. & A. SPALDING, F.R.E.S.

January/February 2001

ISSN 0013-8916



THE ENTOMOLOGIST'S RECORD

AND JOURNAL OF VARIATION

World List abbreviation: *Entomologist's Rec. J. Var.*

Editor

C.W. PLANT, B.Sc., F.R.E.S.

14 West Road, Bishops Stortford, Hertfordshire CM23 3QP.

Telephone: 01279 507697 E-mail: Colinwplant@compuserve.com

Assistant Editors

R.A. JONES, B.Sc., F.R.E.S., F.L.S. & A. SPALDING, M.A., F.R.E.S.

Editorial Panel

A.A. Allen, B.Sc., A.R.C.S.

N. L. Birkett, J.P., M.A., M.B., F.R.E.S.

J.D. Bradley, Ph.D., F.R.E.S.

J.M. Chalmers-Hunt, F.R.E.S.

P.J. Chandler, B.Sc., F.R.E.S.

C.A. Collingwood, B.Sc., F.R.E.S.

A.M. Emmet, M.B.E., T.D., F.R.E.S.

C.J. Luckens, M.B., Ch.B., D.R.C.O.G.

B. Skinner

P.A. Sokoloff, M.Sc., C.Biol., M.I.Biol., F.R.E.S.

Registrar

R.F. McCormick, F.R.E.S. 36 Paradise Road, Teignmouth, Devon TQ14 8NR

Hon. Treasurer

C.C. Penney, F.R.E.S. 109 Waveney Drive,
Springfield, Chelmsford, Essex CM1 7QA

Photograph Editor

David Wilson, 9 Lode Lane, Wicken,
Cambridgeshire CB7 5XP

WHERE TO WRITE

Papers, notes, books for review, notices, adverts etc – *Editor*

Changes of address – *Registrar*

New subscriptions, renewals, donations, non-arrival of Journal – *Treasurer*

Back issues – Paul Sokoloff, 4 Steep Close, Green Street Green, Orpington, Kent BR6 6DS

ANNUAL SUBSCRIPTION RATES

Individual subscriber £28

Institutional subscriber £40

Readers are respectfully advised that the publication of material in this journal does not imply that the views and opinions expressed therein are shared by the Editor, the Editorial Panel or any party other than the named author or authors.

Guidelines for contributors

We welcome articles for publication from all sources. It is not necessary for authors to be subscribers. Please follow the format of articles in this issue of the journal. Full instructions may be obtained by post from the editor or via our web site at <http://members.netscapeonline.co.uk/colinwplant/entrechome.html>

We are now able to include colour or black and white photographs (or slides), where these effectively illustrate a point in your article.

We publish notes and peer-reviewed papers on **British Isles** insects, primarily Lepidoptera and Coleoptera, but contributions on any other group may also be sent. We also include articles on European species in some situations, where we believe this to affect the British Isles fauna or to be of interest to British Isles entomologists. Non-European articles may be included, rarely, and entirely at editorial discretion.

All papers are subject to peer-review and are almost always returned to the author for corrections to be made. Authors should be prepared to make changes. Notes and communications are reviewed by the editorial panel and are not normally returned to authors for checking.

You do not need to have a computer to contribute; we are able to accept typed papers and notes, or even hand-written notes, if necessary. However, it helps enormously to receive manuscripts via E-mail or on floppy disk, in a PC-compatible format that can be read by Microsoft Word 2000. This process also saves us £3 per page in typesetting costs and makes editing much easier.

Drawings, graphs, photographs etc may be sent in an electronic form that has been previously agreed with us. In all other cases, we need the originals (which will be returned).

Authors of papers may receive 25 free reprints and can pay for more. All reprints must be ordered on a form provided with the proofs. Reprints of notes are not provided unless specifically requested at the time of submission.

The editor is always happy to discuss contributions with authors and will be especially pleased to offer help to anyone writing an article for the first time.

**SCRAPTIA FUSCULA (MÜLL.) (COL.: SCRAPTIIDAE) IN
GLOUCS.; WITH NOTES ON THIS AND *S. TESTACEA* ALLEN**

A. A. ALLEN

49 Montcalm Road, Charlton, London SE7 8QG.

RECENTLY Mr P. F. Whitehead informed me that he had taken a specimen of *Scraptia* (13.vi.2000) in East Gloucestershire, which he believed to be *S. fuscula* – a determination duly reported as verified by him by comparison with examples which I sent to him. This is not only a new county record, but also the first for *S. fuscula* outside the Windsor Forest area in modern times, which the captor kindly authorises me to publish; it is therefore of much interest. Before 1940 (see below) there was only J. F. Stephens' ancient record from Ripley, Surrey, which I do not now consider entirely above suspicion because the habitat he gave (flowers in gardens) seems most unlikely for a *Scraptia*.

Buck (1954: 17) was incorrect in stating that "since the discovery of *S. testacea* Allen . . . it is doubtful to which of the two species earlier records apply" and likewise in giving identical distributions for them. I had already pointed out in separating the two species (Allen, 1940: 58) that all specimens in our collections purporting to be *fuscula* had been found to be *testacea*, and the same appears true today for other than Windsor material. Donisthorpe's (1940) valuable observations on mating habits, etc. are actually of *testacea*, written before the separation was published.

Nothing has, I believe, appeared in our literature concerning the range of the latter species abroad, which turns out to be, as far as known, very limited. Whereas *fuscula* is a mid-European species reaching northward to England in a few localities, *testacea* seems to be north-west European, in England occurring as far north as Cumbria, and unknown in, for instance, Germany. It has been met with very rarely in France (north and south) and may perhaps be regarded as the western counterpart of *S. ferruginea* Kies. from south-east Europe. Méquignon (1947) records *S. testacea* as follows: Versailles (Seine et Oise), jardin Saubinet, two males, June 1901, coll. A. Dubois; La Boude and Avignon (Vaucluse), coll. Ch. Fagniez. All other exponents of *S. fuscula* that he examined in the national collections were correctly named. Later records, if any, are unknown to me.

The coexistence of the two species in the Windsor Forest area – chiefly the Great Park – is of much interest (our third species also, *S. dubia* (Ol.), recorded from "near Windsor" by Stephens on the authority of Leach, may have existed there in earlier times). No difference in habit, habitat, or distribution there of the two species is perceptible. They can be beaten from old oaks and more rarely other trees (such as hawthorn, elm) where rotten wood or wood-mould is present. Their relative incidence, however, has fluctuated noticeably over the years. About 1942, the true *S. fuscula* was first detected in the Great Park, on one fairly old oak near the north-west perimeter of the area, where specimens could usually be obtained in season (June/July).

Towards the close of the decade a marked expansion took place, the species having apparently spread either from this tree or from elsewhere to other parts of the park. After that, for a number of years, *fuscula* was the one more often met with, *testacea* being decidedly hard to find; but by the 1970s, and onwards, there was no clear difference in frequency. They were, however, seldom if ever found together on the same tree. Males appear rarer and far shorter-lived than females, which in some years may persist as late as early August.

References

- Allen, A. A., 1940. *Scryptia testacea* nom.nov. and *S. fuscula* Müll. (Col.: Scryptiidae). *Entomologist's mon. Mag.* **76**: 56-8.
- Buck, F. D., 1954. Coleoptera: Lagriidae to Meloidae. *Handbk Ident. Brit. Insects* **5** (9).
- Donisthorpe, H. St. J. K., 1940. On the habits of *Scryptia* (Col.). *Entomologist's mon. Mag.* **76**: 59.
- Méquignon, A., 1947. *Bull. Soc. ent. France*: 60.

A late occurrence of the Mother of Pearl moth *Pleuroptya ruralis* (Scop.) (Lep.: Pyralidae)

Whilst emptying my garden Robinson trap on the morning of 21 October 2000, I was surprised to find a fresh example of the Mother of Pearl moth *Pleuroptya ruralis*. Reference to Barry Goater's *British Pyralid Moths* (1986. Harley Books), confirmed my suspicion that there was no mention of a second generation in this species. Another example, undoubtedly the same moth, appeared in the trap a couple of days later on 24 October. The normal flight period is given as July and August, although I regularly see it in the trap from the middle of June; during 2000, I trapped a total of 67 examples between 28 June and 29 August before the October examples. Weather conditions overnight from 20 to 21 October 2000 comprised mild temperatures and rain. Other species in that trap night included two immigrants – the Rush Veneer *Nomophila noctuella* (D.& S.) (Pyralidae) and the Dark Sword-grass *Agrotis ipsilon* (Hufn.) (Noctuidae), as well as the Pale Mottled Willow *Paradrina clavipalpis* (Scop.) which is also partially migratory. It is interesting, though not necessarily significant, to compare this isolated late record of a pyralid moth with that of another allegedly single-brooded summer species in the same family – *Chrysoteuchia culmella* (L.) – of which an example was taken in Hertfordshire on 10 September 2000 by Colin Plant (*Ent. Rec.* **112**: 272).— TONY STEEL, 57 Westfield Road, Barnehurst, Kent DA7 6LR.

BUTTERFLIES IN HUNGARY, 9-20 JULY 1999ANDREW WAKEHAM-DAWSON¹, TED BENTON² AND BERNARD WATTS³¹ Mill Laine Farm, Offham, Lewes, East Sussex BN7 3QB.² 13 Priory Street, Colchester, CO1 2PY.³ Thatch Cottage, Horstead, Norwich, NR12 7EF.

OUR SUMMER PLAN for 1999 was to go to Macedonia and Kosovo in late July to search for grayling butterflies (Satyrinae: *Hipparchia* and *Pseudochazara*), but the Serbian-Kosovar war put an abrupt end to the idea. So we contacted Tamás Hacz, a lepidopterist whom we had met on a Greek mountain in 1997 (Wakeham-Dawson, Benton & Barnham, 1999). Tamás soon had everything arranged and we flew on 9 July 1999 to Budapest, a city of magnificent buildings that spans the mighty River Danube. Tamás met us at the airport. The traffic had been terrible, and only one electric window on his car was working, but Tamás was on time, and ready to show us the butterfly-delights of his country.

It was mid-day already and very cloudy, but we were keen to get exploring the Hungarian butterfly fauna. Tamás, as always, had a plan. He looked darkly at the clouded sky and suggested: “We drink something now? A coffee, maybe?” This was an invitation that was to become pleasantly familiar. So we drank a coffee in a local cafe and headed for Budapest. Here we made our base in the leafy suburbs for the first few days at the flat kindly set aside for our visit by Imre Petezár, a coleopterist and friend of Tamás. During our stay we ate goulash-soup, drank “beers”, were rained on, and mugged by bogus police officers. Huge thunder storms circled the city and Tamás told us about the month of hot, dry weather that they had been experiencing in Hungary before our arrival.

However, after a cloudy start on 10 July, we set out in weak sunlight to explore dry hills near Vác to the north of Budapest. In orchards, gardens, and abandoned meadows and quarries between 300 and 600 m above sea level, we saw a rich assortment of butterfly species. These included the closely similar fritillaries, *Mellicta britomartis*¹ and *Mellicta aurelia*, together with a number of lycaenids such as *Agrodiaetus admetus*, *Plebejus argyrognomon* and *Cupido osiris*. The last of these species has a very limited distribution in Hungary (Bálint, 1996). We hunted for *Neptis rivularis* among deciduous trees between the meadows, but found none. Tamás thought that we might have missed the flight, which could have been brought on early by the previous period of hot weather.

One of the most interesting butterflies present in the dry meadows was *Maculinea ligurica puntifera*. Higgins & Riley (1983) place this taxon as a subspecies of *Maculinea arion*, but Bálint (1996) elevates it to full specific status. Male *Maculinea ligurica* have brighter blue wings and are noticeably

¹ Butterfly nomenclature is based on Bálint (1996) and Tolman & Lewington (1997). Authors and dates of taxon descriptions are not included in the current paper as they can be found in these two publications.

larger than *Maculinea arion*, with which *Maculinea ligurica* is sympatric in Hungary. In fact we found both *Maculinea ligurica* and *Maculinea arion* flying together near Apátistvánfalva in the north-west of the country later in the expedition (13 July). They were present in dry areas among wet meadows where *Thymus* and *Oregano* were growing. The taxonomic status of *Maculinea ligurica* and its relationship to *Maculinea arion* is uncertain, and research on these, as well as other Hungarian forms of the *Maculinea* species, is clearly required.

On 11 July we headed south to an area of low-lying (c. 130 m) steppe grassland in the industrial suburbs of southern Budapest. This relatively small area of grassland and scrub bushes lies on the very edge of Budapest. Tamás had found *Colias chrysotheme* flying here in the past, and we were lucky too. Despite skudding clouds after a night of very heavy thunder and rain, we saw fast-flying male and female *Colias chrysotheme*. This species is similar to *Colias crocea* in appearance, but is typically smaller, has a yellow spot in the black “eye” of each upper forewing, and the costal margin of the forewings is markedly concave, giving them a more “pointed” appearance. Also flying with *Colias chrysotheme* were *Colias alfacariensis* and *Colias hyale*. Zsolt Bálint told us that in autumn in Hungary you can find an array of hybrids among these *Colias* species. However, the early broods of the following year are always pure to type again, and so he assumes that these hybrids are not fertile.

The next day we drove west to the extreme north-western corner of Hungary towards Tamás' village of Hegyhátszentjakob, via the Bakony Mountains. We stopped in the mountains and set off in thick fog to explore meadows (400-500 m) below pine trees in these limestone hills. The sun broke through the fog and we saw many butterfly species including *Everes argiades*, *Glaucopsyche alexis*, *Mellicta britomartis*, *Mellicta aurelia*, *Melitaea didyma*, *Hipparchia semele* (one pristine male) and *Maculinea xerophylla* laying eggs on cross-leaved gentian (*Gentiana cruciata*). The relationship between the last of these taxa and three other Carpathian *Maculinea* taxa: *alcon*, *rebeli* and *tolistus* (= *Maculinea alcon sevastos*?) is very uncertain. Later in the week (see below) we discussed this at length with Zsolt Bálint and László Peregovits at the Hungarian Natural History Museum. They suggest that these taxa may be forms of a “*Maculinea alcon*-superspecies”, a genetically “plastic” complex of taxa that is in a process of evolution. *Maculinea xerophylla*, *M. tolistus* and *Maculinea rebeli* tend to be dry habitat forms (often in hills and mountains), feeding on *Gentiana cruciata*, while *Maculinea alcon* is a wet habitat form (usually in lowland areas), feeding on marsh gentian (*Gentiana pneumonanthe*). To date agriculture has been less intensive in the Carpathian basin than in Western Europe. In Western Europe, habitat fragmentation has resulted in lowland *Maculinea alcon* and upland *Maculinea rebeli* populations being clearly separated (Munguira, Martin & Rey, 1991), allowing clear speciation of these



Plate A. *Maculinea telejus*. Male. Hegyhátszentjakob, Hungary, July 1999.

Photograph © Ted Benton

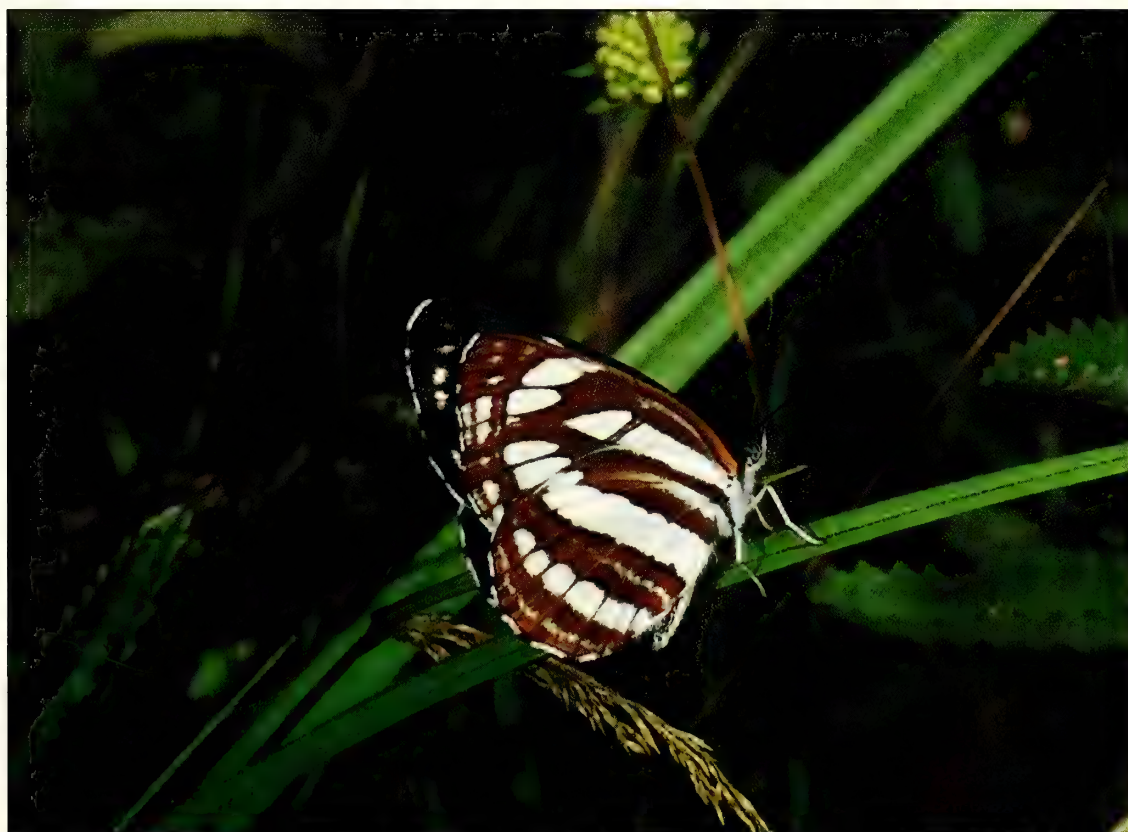


Plate B. *Neptis sappho*. Female. Fertő-Hanság Nemzeti Park, Hungary, July 1999.

Photograph © Ted Benton

Maculinea butterflies. Habitat fragmentation has been less severe in Hungary and accordingly there is less clear speciation among the *Maculinea*, and apparently more taxa.

We arrived at Tamás' village (c. 250 m) in the late afternoon, and found Tamás had arranged lodgings for us at the home of his friend and close neighbour (a pharmacist, who supplied his entomological chemicals). Tamás' garden ran down to lush meadows and deciduous woodland. *Maculinea telejus* (Plate A) and *Maculinea nausithous* were abundant in the *Sanguisorba major*-rich meadows. This dispelled our earlier incredulity at Tamás' casual remark that these species (which are endangered in Western Europe) "fly in my back garden". BW and TB worked late into the evening, attempting to get a photograph of *Maculinea nausithous* with wings open and dorsal wing surfaces showing, but were far from successful as this species tends to feed with its wings closed. A species of tiny but unidentified invertebrate bit both photographers on the hands, leaving painful wounds.

Our brief stay in the village enabled us to visit the nearby Fertő-Hanság Nemzeti Park, an ecological "paradise" on the border with Austria. Tamás and his young son (Tamás junior) took us to meet Márta Havas, the young woman in charge of the park, which had been established to maintain traditional pastoral agriculture in the region and conserve the associated wildlife. We searched for *Colias myrmidone* in the hay meadows. According to Tamás, this species appears to form mobile populations that change geographical locations between years. We found its larval food-plant, *Genista tinctoria*, growing in some profusion, but there was no sign of larvae or adult *Colias myrmidone*. Tolman & Lewington (1997) record that *Colias myrmidone* may be extinct in Hungary, but Andreás Máté, warden of the Kiskunsági Nemzeti Park (see below), told us a few days later that he had captured a specimen in the recent past.

The weather was fitful, with frequent and sometimes heavy rain, but we found what appeared to be a colony of *Leptidea morsei major*. Tamás was delighted to see *Leptidea morsei* so close to his home, as it is considered to be a very rare species in Hungary. These wood-white butterflies were flying even in the rain and we identified them in the field as distinct from *Leptidea sinapis* (with which they were flying) by their falcate fore wings and concave fore wing margins below the apex. However, AWD later examined the genitalia of a male "*Leptidea morsei*" (preparation: AWD433) and found that it was most probably "*Leptidea sinapis*". The genitalia of specimen 433 resembled a drawing of *Leptidea sinapis* genitalia in Higgins (1975) and the genitalia of a *Leptidea sinapis* specimen from Sussex, England (preparation: AWD434). However, distinguishing between the genitalia of these two species is difficult and can probably only be done reliably by biometric analysis of a series of specimens (Mazel & Leestmans, 1999).

On the morning of 14 July, TB and BW rose at dawn determined to improve on their earlier photographs of the *Maculinea* species. They were rewarded

with beautiful views of male *Maculinea telejus* opening their wings as the first rays of sunlight caught the dew-laden grasses in which they had been roosting. *Maculinea nausithous*, however, remained on their *Sanguisorba* flowerheads, occasionally moving their wings back and forth in a parallel motion, but never opening them except to fly. They always positioned themselves sideways to the sun, suggesting that they use their dark undersides to “sunbathe” without needing to open their wings. In the same meadow were several *Heteropterous morpheus* flying with their distinctive “looping” motion at 7.00am, well before either of the *Maculinea* species were active.

BW and TB moved on to a woodland-edge site that Tamás had pointed out as a good place to see one of our main “target” species, the lovely “glider”, *Neptis sappho* (Plate B). The site was a wet meadow, bounded by a cart track and a tall hedge (consisting mainly of the larval host-plant of *Neptis sappho* in this area, *Robinia pseudacacia*) at the margin of extensive deciduous woodland. On arrival (at about 8.30am), BW and TB saw two *Neptis sappho* nectaring at about a height of 3-4 m on flowers of alder buckthorne (*Frangula alnus*). Soon these were joined by other *Neptis sappho*, which soared along the hedge and come down to settle on the tangle of *Rubus fruticosus* and *Rubus idaeus* plants between the hedge and open grassland. The butterflies may have been sipping juice from the fruits of *Rubus idaeus*, but were also imbibing dew from leaves, as well as “sunbathing” with widespread wings. By 9.30am, the *Neptis sappho* were flying out into the meadow, and nectaring from the blossoms of an abundant yellow bedstraw (*Galium verum*?). Up to four at a time were eagerly sipping sweat from TB’s clothes. BW also noticed one “mud-puddling” on the cart track as the photographers headed back along the track to Tamás’s home for a magnificent breakfast, which included an unprecedented 25-egg omelette.

The following day we returned to Budapest via Imre Petezár’s weekend “villa” on the north shores of Lake Balaton. The weather had improved, and, appreciating yet another example of unfailing Hungarian hospitality, we enjoyed wine, bread and cheese in the shade of some large, leafy trees. The villa was situated at about 250 m looking down on the glistening blue lake. *Plebejus idas* and *Everes decoloratus* were flying during our visit and Imre told us that *Iolana iolas* flies in the area with *Parnassius mnemosyne* in June. This is an unusually low altitude and dry habitat for the last of these species, which is more often associated with mountain habitats in the southwest of Europe.

The somewhat unpredictable and picaresque character of our trip continued, as we were asked by Imre if we would take an opera-singer friend of his back to Budapest, where he was singing a Mozart bass part. We collected the seven-foot tall singer from a bar near Imre’s summer-house, but not before the singer had finished his game of pool.



Plate C. *Argynnis laodice* Female. Zemplen Mountains, Hungary, July 1999.

Photograph © Ted Benton



Plate D. Zemplen, Hungary, July 1999. Habitat of *Argynnis laodice*, *Maculinea arion*, *M. telejus* and many other species.

Photograph © Ted Benton

After a night in Budapest, we headed northeast to the Zemplen Mountains. As we drove into the centre of Budapest on route to collect Stephan, a forester and fellow entomologist who was coming with us to the mountains, we were surprised to see many police cars speeding past us with their lights and sirens indicating serious trouble. Soon we learned that Stephan had set-off a burglar alarm by mistakenly trying to enter a bar that was in fact closed. Fortunately, Tamás, whose resourcefulness seemed unlimited, “had a word” with the police, and Stephan was released. Soon we were on the road again, AWD in the lead car, with Tamás and Stephan. Tamás’ car still had only one window working, and Stephan, a Charles Bronson look-alike, smoked with a fury. On one occasion AWD offered him water from his bottle. Stephan shook his wild mane of black hair in disgust: “I am man, not animal; I drink beers, not water”.

Gábor Hegyessy, an entomologist from the Kazinczy Ferenc Museum joined us in the wooded hills of the Zemplen. The area is an entomologist’s dream, and we soon found our “target” species – the fine fritillary, *Argynnis laodice* (Plate C). This fritillary is similar to *Argynnis paphia* (with which it flies), and their location in the Zemplen Mountains marks the extreme western edge of *Argynnis laodice*’s range that extends eastward into Russia. *Argynnis laodice* can easily be distinguished from *Argynnis paphia* by the more compact, “square” shape of its wings, the distinctive distribution of the androconial scales in the males, and a small, triangular white patch near the apex of the forewings in the females. The undersides are strikingly beautiful, especially in the females, which have the post-discal area of the hindwings washed with purple. These butterflies were frequent along woodland rides, and on the open, scrubby meadows nearby, often sunning themselves with open wings, or nectaring from *Rubus*, or various types of Labiatae (*Thymus*, *Prunella*, and *Stachys* species). Also present were a few newly emerged specimens of the very dark eastern form (*rubra*) of *Erebia aethiops*, and two quite distinct forms of green-veined whites were flying in the woods, distinguished as *Pieris napi* and *Pieris bryonae* by the local lepidopterists. We were treated to two brief views of late-flying *Limenitis populi* and a single *Nymphalis antiopa*, which obligingly posed for the photographers on the path in front of us. Other species noted included *Minois dryas* (mainly freshly emerged males), *Lycaena virgaureae*, *Erynnis tages*, *Hamearis lucina*, *Mellicta athalia*, *Pararge aegeria*, *Aphantopus hyperantus*, and *Artogeia ergane*. In the nearby meadows, *Argynnis laodice* was accompanied by *Maculinea telejus*, *Maculinea arion*, *Maculinea ligurica punctifera*, *Pseudophilotes vicrama*, *Polygonum c-album*, *Argynnis aglaja*, *Clossiana selene*, *Brenthis ino*, *Mellicta britomartis*, *Melanargia galathea*, and others already mentioned in the area. AWD was lucky enough to hear and then see a Black Stork *Ciconia nigra* flying over a forest ride to its nest at the top of a tall pine tree.

After an interesting tour of the local museum, we set off on 18 July, for our return journey to Budapest. The last unbroken electric window in Tamás’s car finally broke: mercifully stuck partly open. “Lucky for you it open”, growled

Stephan, "or you be smoked like fish before Budapest". We reached Budapest by evening after two stops on the way. The first was in the Matra Mountains, the tallest peak of which is c 1000m and the tallest mountain in Hungary. At 700 m, we searched in abandoned meadows for *Clossiana titania* which was once captured here (some 20 years ago) and represented by three specimens in the Budapest Museum, but we found only *Clossiana dia*. However, there were other interesting species at this spot. *Gentiana cruciata* was abundant on higher, drier slopes, and most plants were festooned with eggs of *Maculinea xerophylla*, though the adult butterflies themselves were not in evidence: presumably having past their flight period. Species flying in the meadows included *Issoria lathonia*, *Mellicta aurelia*, *Mellicta britomartis*, *Melitea didyma*, *Argynnis aglaja*, *Lycaena virgaureae*, *Lycaena alciphron*, *Everes argiades*, *Maculinea alcon* (in lower, damp areas close to a small stream), *Maculinea arion*, *Maculinea ligurica punctifera*, *Cyaniris semiargus*, *Plebejus argus*, *Maniola jurtina*, *Aphantopus hyperantus* and many more species.

Our second stop, on the way back to Budapest, was near Katalinpuszta, where freshly emerged second brood *Lycaena dispar* were flying, with *Everes antalcetas*, *Plebejus argus*, *Polyommatus icarus* and *Erynnis tages*, in weak evening sunshine. The next call was to the bar in Stephan's village. Here a small wall case of butterflies marked his reserved seat. Eventually we arrived at Stephan's home to be greeted warmly by his family, and treated to a superb supper. The conversation flowed over many memorable adventures shared by Tamás, Stephan and Zsolt Bálint on their travels in Rumania and overseas. A pet tarantula spider brought back from Peru by Stephan had escaped in the house while he had been away on a visit to Transylvania. The spider had lived in a hole under the sink until Stephan's return, but was safely caged again during our visit.

Our final excursion (19 July) of this visit to Hungary was a day at the Kiskunsági Nemzeti National Park, near Kumpezer, southwest of Budapest. This lowland area has marshes that are kept wet by hydrological control. László Peregovits, Andreás Málé (the park's warden) and several research students joined us on this trip. Our main butterfly interest was in *Maculinea alcon*, which has a large population here. As we had hoped, the butterfly was already on the wing (this species flies later than the dry habitat *Maculinea*), and flying with *Maculinea telejus*. This caused some confusion at first, but *Maculinea alcon* has a weaker, more "lazy" flight than its relative *Maculinea telejus*. Several *Maculinea alcon* females were observed ovipositing on the tips of spikes of *Gentiana pneumonanthe*, which were just coming into flower. BW had the best entertainment of the day as a student deftly netted a pristine *Maculinea alcon* just as TB was about to photograph it. However, there were compensations to this disappointment, in the shape of a tiny green tree frog in the marsh vegetation, and a yellow female of *Colias erate* (another of BW and TB's "target species"). AWD also observed Great Bustards *Otis tarda* in the drier areas of the plain.

We retired to a local pub for lunch, and had a fascinating discussion about research (involving captive rearing and capture-recapture studies) on the life histories and taxonomy of the Hungarian *Maculinea* taxa. After lunch we embarked on what seemed an interminable drive along rough tracks, led by a much-derided Trabant “car”, which performed exceptionally well. Our final destination was an area planted with lucerne *Medicago sativa*, a favoured habitat of *Colias erate*. While our Hungarian companions wisely sat and talked in the shade of a tree, the mad-dog Englishmen chased after the fast-flying clouded yellows that ranged over the fields. *Colias erate* (mainly males) were flying with *Colias afalcariensis*, but were readily distinguished from the latter by the brighter “butter” yellow of their upperside and unbroken black borders (in the males). *Colias erate* males also proved to be more powerful in flight, covering large expanses of territory, a meter or so above the ground, and diverting frequently to nectar, or investigate plants (for settled females?). One pair was observed *in copula*.

Before leaving for our flight, on the following day (20 July) there was just time to see the fine reference collection established by Tamás and his colleagues, and to visit Zsolt Bálint at Budapest Museum. He generously offered help and advice regarding our own discoveries and remaining doubts following our fantastic tour through Hungary.

Attentive as ever, Tamás accompanied us to the airport to see us safely on the plane. We were at a loss as to how to thank him or repay him for laying on a truly memorable adventure: the generosity and hospitality of Tamás and his friends rivalled the wonderful habitats we visited and species we saw in making this the trip of a lifetime.

References

- Bálint, Z. 1996. *A Kárpát-medence nappali lepkei: 1.resz. [Butterflies of the Carpathian Basin, Vol. 1]*. Budapest: MME.
- Higgins, L. 1975. *The Classification of European Butterflies*. London: Collins.
- Higgins, L. G. & Riley N. D. 1983. *A Field Guide to the Butterflies of Britain and Europe*. London: Collins.
- Mazel, R. & Leestmans, R. 1999. Séparation biométriques des *Leptidea sinapis* L., *morsei* Fenton et *reali* Reissinger. *Linneana Belgica* **17**: 46-52.
- Munguira, M., Martin, J. & Rey, J. M. 1991. Use of UTM maps to detect endangered lycaenid species in the Iberian Peninsular. *Nota Lepidopterologica*, Suppl. 2: 45-55.
- Tolman, T. & Lewington, R. 1997. *Butterflies of Britain and Europe*. London
- Wakeham-Dawson, A., Benton, T. & Barnham, V. 1999. Butterflies and dragonflies in northern Greece, 27 June - 9 July 1997. *Entomologist's. Rec. J. Var.* **111**: 121-128.
-
-

White Colon *Sideridis albicolon* (Hb.) (Lep.:Noctuidae): New to Denbighshire (VC50)

On the 16 June 2000 I attended a public moth event in Kinnel Bay. The event was held at a newly created local natural reserve in the centre of the town. The reserve consists of a remnant of the once extensive dune system that used to be present along the North Wales coast. The conditions for trapping were ideal; warm (16.5°C when I left the site at 3:30am), humid and still. Consequently, good numbers of moths were caught. These included Sand Dart *Agrotis ripae*, Archer's Dart *A. vestigialis*, many Latticed Heath *Chiasmia clathrata*, including one of the form *alboguttata*, Shore Wainscot *Mythimna litoralis* and a number of White Colon *Sideridis albicolon*. As these species are fairly typical of dune systems, I did not realise the significance of the captures at the time. However, upon checking the status of the species using the distribution maps in Heath & Emmet (1983. *Moths and Butterflies of Britain and Ireland*), I discovered that there are no recent records of the White Colon from the North Wales coast, although the insect still occurs at either end of the coast on Anglesey and in Cheshire and Lancashire. On the 17 October, at the annual review meeting of the Lancashire and Cheshire Entomological society I had the opportunity to talk to the moth recorder for Denbighshire (VC 50) and discovered that my records of this species are, in fact, new to the vice county. – ADRIAN WANDER, 5 Almond Grove, Weaverham, Cheshire CW8 3ET.

***Acleris kochiella* (Goeze) (Lep.: Tortricidae) new to Norfolk**

On 28 July 2000, I was running three 125 watt m.v. lamps at Foxley Wood (OS grid reference TG 057226), one of Norfolk's largest deciduous woodlands. Amongst the several species encountered was a specimen of *Acleris kochiella* (= *boscana* Fabr.). Although I thought, initially, that this must be a new county record for Norfolk, I later learned that just over a week before this date, on 17 July, Chris Regan had also caught one in his garden trap at Rockland St. Mary (TM 3204), south of Norwich. Both locations lie in vice-county 27 (East Norfolk).

Although *A. kochiella* appears to be fairly widespread in Essex, with records from East Ham in the south to Dovercourt and Colchester in the north, there are only two records from Suffolk – Ipswich Golf Course and Martlesham Heath, both in the south of the county. Bradley, Tremewan & Smith (1973. *British Tortricoid Moths*. Ray Society), give the distribution as "Locally common amongst elms in the southern counties of England ...", and these records still seem to reflect this. I am grateful to Dr John Langmaid for checking the national microlepidoptera maps and confirming that *A. kochiella* is new to Norfolk. – JON CLIFTON, Kestrel Cottage, Station Road, Hindolveston, Norfolk NR20 5DE.

**THE OCCURRENCE OF THE JUNIPER SHIELDBUG
ELASMOTETHUS TRISTRIATUS (FABR.)
(HET.: ACANTHOSOMATIDAE), IN NORTHUMBERLAND AND
CO. DURHAM**

HARRY T. EALES

11 Ennerdale Terrace, Low Westwood, Co. Durham NE17 7PN.

ACCORDING TO Southwood and Leston (1959) "The Juniper Shieldbug is found in juniper woods where these are of a lowland or downland form. Thus the upland patches of juniper in Yorkshire and the north do not usually support it, and a Northumberland record requires confirmation: The sole authentic capture in the north was made in Witherslack Wood, Lancs. [now Cumbria] in February 1935".

Ward (1977) shows a distribution map of this species and the accompanying notes state, "A southern species". The Witherslack record is mentioned, and the text continues, "there are two possible records for Durham. Heslop-Harrison (1955)".

The only local list of Hemiptera, Bold (1872) does not record this species. However, Masee (1945) does indicate a record of this insect's occurrence in Northumberland. The origin of this record can be traced to Saunders (1892) where this species was noted to have been recorded by "Wailes, Newcastle". George Wailes (1802-1882) was a contemporary of T. J. Bold (1816-1874); both were notable members of the local natural history society and very competent entomologists. Bold frequently quoted records made by Wailes in other papers. It would appear that Wailes made the "Newcastle" record sometime between 1872 and 1882. As Newcastle-upon-Tyne is situated on the southern edge of what was then Northumberland, this record could, in fact, relate to either county. The nearest stands of juniper to Newcastle-upon-Tyne are in Co. Durham and this record is probably from the latter county. This likelihood is enhanced by the fact that Wailes lived in Co. Durham.

The next note of this species occurrence locally, is that of Prof. J. W. H. Harrison (1955), who records finding it on 21 September 1955, near East Butsfield, (OS grid reference NZ 1145) and later, on 24 September in the same year, near Wolsingham, (NZ 0737). Both sites are in Co. Durham. However, an examination of the juniper distribution in Co. Durham, (see Graham, 1988), does not indicate any records of this plant for the ten-kilometre grid square NZ 14. There is, however, considerable doubt, at local and national level, concerning the validity of many of the botanical and entomological records made by J. W. H. Harrison (Sabbagh, 1999). I have in my possession Harrison's Hemiptera collection. None of the specimens in it are labelled as being taken by him. The few insects that do have data labels were taken by well-known hemipterists such as A. M. Masee and others, but most insects would appear to have been purchased, or otherwise obtained, by Harrison as a reference collection.

In March 2000, I was asked by The Northumberland National Park Authority to carry out a survey of the invertebrates on Juniper at three sites within the Park. All three areas are considered as "upland" although, apparently, there is no definition to separate the lowlands from uplands (D. A. Sheppard, pers. com.) Monthly visits were made to each site.

On 15 June, at Hepple Whitefield Farm (VC 67, grid reference NY 9898), seven specimens of the Juniper Shieldbug were beaten from female juniper bushes, bearing numerous ripe berries. All were mature over-wintered adult insects. This is the first confirmed record of this species in Northumberland.

Having been successful in finding this insect in Northumberland, I then determined to try and locate it in Co. Durham (VC 66). On 18 June, I visited the Hisehope Burn SSSI, (NZ 0447). Three specimens were found before rain terminated further work. Again all were mature adults.

On 5 August, I visited Ilderton Dod Alders and Threestoneburn Alders (both NU 9920), in the Cheviot Hills in North Northumberland (VC 68). Fifteen specimens of Juniper Shieldbug in total were beaten from these sites, which are within a designated Site of Nature Conservation Importance (SNCI). Once again all the specimens were mature, rather than teneral, forms.

On 8 August, at The Bog Farm SSSI, in the south-west of Northumberland (in VC 67 at NY 6854), six mature specimens were beaten from berry-bearing juniper. Several half-grown nymphs were also found. Three adult specimens were retained. When these were examined upon reaching home one pair was *in copula*. Bearing in mind the late date of this mating, is it possible that this species is double brooded (although behaviour in the artificial situation within the specimen pot does not necessarily reflect the natural situation). In view of the cool climatic conditions prevailing in the northern uplands and the altitude of the sites, between 180 and 280 metres above sea level (588 to 916 feet), this seems very unlikely. At present, no local data are available as to the time of the adult's emergence from hibernation. Southwood & Leston (1959) give late March for southern downland specimens, but it is likely to be much later in the year on these cold and windswept northern upland sites.

On 11 August four specimens were beaten from juniper at Oakeydene (NY 821559) in south Northumberland, V.C.67. Again, all these specimens appeared to be over-wintered adults. A further four specimens were taken from juniper on National Trust landholding on 20 August at Park Burn (NY 698612) in VC 67.

A visit to the Rowley Burn near Hexham, Northumberland at NY 9056, on 22 August produced only a single nymph. There were only two female juniper bushes on the site with several males spread out along the edge of a steep birch covered ravine.

Dr B. S. Nau (The National Hemiptera Recorder) informed me that, in recent years, *Elasmotethus tristriatus* has increased its range in southern England by utilising Lawson's Cypress *Chamaecyparis lawsoniana* as an alternative foodplant. This conifer is not at all common in towns and villages

in either Northumberland or Durham. It is none-existent in the very isolated upland areas where juniper is found. It would, therefore, appear that the Juniper Shieldbug could be an indigenous species in northern England and, possibly, has been present undetected in these counties for centuries. The lack of records for this species is almost certainly due to the fact that there have been very few local entomologists interested in Hemiptera, and that most of the stands of juniper are not at all easily accessed.

At present, no attempt has been made to assess numbers of this shieldbug on the sites where it has been located; the aim has been simply to detect it, and to obtain records from the three vice-counties. Further work on the local distribution of this insect will be carried out as time permits. From the records obtained so far this year, it appears that this insect has a wide distribution locally. There are at least 83 known sites where juniper can be found within Northumberland & Co. Durham (Clifton et al., 1995; 1997), varying from sites with single isolated plants to those with colonies of over 400 bushes.

Now that the occurrence of this species is proven in north-east England, it would be well worth while for those who have an interest in Hemiptera, to examine stands of juniper in Yorkshire, Cumbria and counties further south where this insect has not been recorded, to ascertain whether it is present. Examining juniper stands in areas where it is known to exist may also reward entomologists north of the Scottish Border. Where it occurs in Cumbria and in Scotland, the *Juniper communis* ssp. *nana*, should also be examined.

In Northumberland and Co. Durham, juniper grows in three forms according to its exposure to the elements. These are prostrate, semi-erect and columnar. Female, berry-bearing plants of all three growth forms often occur on the same site and all have produced specimens of this shieldbug. No specimens have been beaten from male bushes.

When seeking this insect, care should be taken when examining the contents of the beating tray. If this insect lands on its back, it can remain immobile for some considerable time. The colour of the underside of the insect exactly matches the colour of unripe juniper berries which may also be in the tray. From my somewhat limited experience of finding this species, I would suggest that anyone seeking this species should concentrate on examining only the female berry-bearing bushes and to pay specific attention to branches receiving long hours of exposure to sunlight, especially those on the edges of juniper stands. These seem to be the most productive places.

Acknowledgements

My gratitude is expressed to Dr D. A. Sheppard, at English Nature, Peterborough, and to Brenda Burrell at English Nature, Stocksfield, Northumberland, for advice and access to English Nature documents on juniper distribution. I also thank Dr B. S. Nau for information on the alternative foodplant of *E. tristriatus* and various landowners, their agents and

tenant farmers, for access to the sites examined. I am also indebted to an anonymous referee for a number of suggestions for improvement to this paper.

References

- Bedwell, E. C. & Massee, A. M., 1945. The County Distribution of the British Hemiptera-Heteroptera. *Entomologists Monthly Magazine*. **81**: 253-273.
- Bold, T. J., 1872. A Catalogue of the Insects of Northumberland and Durham. (Hemiptera-Heteroptera) *Trans. Tyneside Naturalists Field Club* **4**: 348-371.
- Clifton, S. J. & Mullinger, S., 1995. *Juniper – A Review of its Status and Distribution in Northumberland* English Nature Northumbria Team. (unpublished report).
- Clifton, S. J., Ward, L. K. & Ranner, D. S., 1997. The Status of Juniper *Juniperus communis* L. in North East England. *Biological Conservation* **79**: 67-77.
- Graham, G. G., 1988. *The Flora & Vegetation of County Durham*. The Durham Flora Committee & The Durham County Conservation Trust.
- Harrison, J. W. H., 1955. Notes & Records. *Vasculum* **40**: 31.
- Sabbagh, K., 1999. *A Rum Affair*. Penguin, London.
- Saunders, E., 1892. *The Hemiptera Heteroptera of the British Islands*. (pp. 41-42). Reeve, London.
- Southwood, T. R. E. and Leston, D., 1959. *Land and Water Bugs of the British Isles*. (pp. 19-20). Warne, London.
- Swan, G. A., 1993. *Flora of Northumberland*. Natural History Society of Northumbria.
- Ward, L.K., 1977. The conservation of Juniper: The associated fauna with special reference to southern England. *Journal of Applied Ecology* **14**: 81-120.

A note on *Oedemera lurida* (Marsham) (Col.: Oedemeridae) in North London (Middlesex)

Further to the discussion of *Oedemera lurida* by Laurence Clemons (*Ent. Rec.* **111**: 141-143) and Roger Morris (*Ent. Rec.* **112**: 265), I can comment upon its occurrence on Coppett's Wood which abuts my garden. Here the species has been noted as widespread on scrubland and grassland June-August (1985, *Coppett's Wood and Environs as a Local Nature Reserve, Wildlife Survey and Management Proposals*, London Wildlife Trust: 57). Formerly, the eastern area of the woodland had been the site of a sewage works which closed in 1963 and for the following two years was used as a rubbish tip and dumped to a depth of approximately 20 feet; also overflows of sewage have occurred into the wood and various developments have occurred around the boundaries of the site. Thus the area would fit Mr Morris's association of *O. lurida* with "ruderal habitats such as waste ground and roadside verges". Mr Morris notes its occurrence on ox-eye daisy *Leucanthemum vulgare* L., to which I can add spear thistle *Cirsium vulgare* (Savi) and bindweed *Convolvulus arvensis* L. Oedemeridae are pollen feeders. I have not seen *Oedemera nobilis* (Scopoli) in the area.— K. G. V. SMITH, 70 Hollickwood Avenue, London N12 0LT.

Further records of Hoary Footman *Eilema caniola* (Hb.) (Lep.: Arctiidae) in North Wales

I read with interest the note by Adrian Wander in the last issue of this journal (*Ent. Rec.* **112**: 251) reporting *Eilema caniola* on Anglesey in August 2000. Whilst operating mercury vapour light traps in Snowdonia, at Plas Tan Y Bwlch, Maentwrog (Gwynedd) I, too, was surprised to record *caniola* on 28 July 1997 and 21 July 1999. This species would appear to have a wider distribution north and westward than is currently documented.

During a visit to southern Ireland in 1986 I recorded *E. caniola* at Baltimore Bay, near Skibbereen (see *Ent. Rec.* **99**: 45).— DAVID C. G. BROWN, Jacksons Lawn, Charlecote, nr. Warwick, CV35 9EW.

An exceptionally early Common Quaker *Orthosia cerasi* (Fabr.) (Lep.: Noctuidae) from Devon

I was surprised to see what appeared to be a noctuid moth outside my kitchen window on 5 December 2000. I quickly boxed it and found it to be a somewhat worn female of the above species. Perhaps the recent run of unseasonably mild temperatures were responsible for its emergence, almost three months earlier than usual.— ROBERT BOGUE, 2 Rose Cottages, Lydford, Devon EX20 4AW. (E-mail: robbogue@aol.com)

A December record of the Common Quaker *Orthosia cerasi* (Fabr.) (Lep.: Noctuidae) in West Yorkshire

On checking my back garden Robinson trap here at Elland (OS grid reference SE 112221; VC 63 – West Yorkshire), on the morning of 3 December 2000, I found a moth amongst the egg cartons which I at first glance took to be a Yellow-line Quaker *Agrochola macilenta* (Hb.) On closer inspection, however, realised that it in fact appeared to be a Common Quaker *Orthosia cerasi*.

Since none of the available literature seemed to suggest that this species was ever recorded before February I began to question my abilities. After looking through “*Skinner*” for possible alternatives I decided to ask my friend Ian Kimber for his opinion. Ian and I both rechecked any possible alternatives and came to the conclusion it was indeed a very early record of Common Quaker.

As a safeguard, I decided to send the specimen to Mr H. Beaumont, one of the Yorkshire Lepidoptera recorders, for confirmation and to check for any other early records of *O. cerasi*. Mr Beaumont replied two days later that indeed the specimen was *O. cerasi* and was the only known record for this species in early winter in Yorkshire. The only other record I have been able to discover of a very early emergence of Common Quaker is of one taken at Ipswich golf course on 25 November 1999 by Mr N. Sherman. It would be interesting to discover any further records of very early emergence of spring

species to see if this is an isolated instance due to the very mild temperatures this winter or the start of changing emergence times due to the increase in temperature supposedly caused by global warming.— PAUL TALBOT, 133 Park Road, Elland, Halifax, West Yorkshire HX5 9HZ.

(E-mail: paulinvc63@aol.com)

**Clouded-bordered Brindle *Apamea crenata* (Hufn.) (Lep.: Noctuidae).
Some unusual dates in East Lancashire**

Whilst working through the records of fellow moth recorders in Lancashire for the 2000 Annual Moth Report, I came across records of *Apamea crenata* from Worsthorpe, near Burnley, Lancashire (approximately 200 metres amsl), well outside their usual flight period. The recorder involved, Graham Gavaghan, is relatively new to moth trapping and my first reaction was to check with him that the identification and dates were correct. Graham kindly forwarded two of the specimens for verification and also provided a complete list of dates for his captures of this species throughout the year. His first record was on June 6 2000 when five came to m.v. light, followed by good numbers virtually every night, with the exception of a holiday break in early July, through to 15 July. Three singletons were recorded on 22, 23 and 24 July and a further moth on 1 August. Then, on 15 August, a single *A. crenata* was trapped followed by further individuals on 18, 22, 23, 30 August and on 4 and 10 September.

I have checked through available recent records (1995-2000) from seven sites in Lancashire, including a further inland moorland edge site, where nightly or very regular trapping efforts occur and the above figures fit in nicely with the range of dates up to the end of July. The earliest known date for the species from the records examined was 6 May 1995 (Flixton, Greater Manchester: Kevin McCabe) with an average date for the first record being 20 May. The latest date, prior to Graham's was 29 July 1997 (again from the Flixton site) and an average last date of 11 July. The seven moths in mid-August to early September are, therefore, exceptional for this area and I can find no evidence in either Heath & Emmet (1983. *The moths and butterflies of Great Britain and Ireland*, **10**), or Skinner (1998. *Moths of the British Isles*), to suggest late emergence or second broods. As some of the specimens from this late emergence were retained, and included at least one ab. *combusta* Haworth, it was not a case of a single moth being continually re-trapped. Considering the number of individuals potentially involved it was strange that no-one else in the county experienced this phenomenon. I would be interested to hear of any similar occurrences elsewhere.— S. M. PALMER, 137 Lightfoot Lane, Fulwood, Preston, Lancashire PR4 0AH. (E-mail: Palmer01@genie.co.uk)

AN ANNOTATED LIST OF TYPE SPECIMENS OF LEPIDOPTERA
DEPOSITED IN THE COLLECTION OF THE
INSTITUTE OF ZOOLOGY, SOFIA
I. BUTTERFLIES (LEP.: PAPILIONOIDEA)

STANISLAV ABADJIEV

Institute of Zoology, Bulgarian Academy of Sciences, 1, Tsar Osvoboditel Blvd, Sofia 1000, Bulgaria.

E-mail: stanislav.abadjiev@usa.net

A REVISION OF the Lepidoptera collection of the Institute of Zoology at the Bulgarian Academy of Sciences in Sofia allowed to find type material of four nominal species group taxa (46 specimens) of Papilionoidea (Nymphalidae). The collection contains type material of taxa described by M. Krzywicki, A. Slivov and Z. Varga.

The purpose of the present paper is to make this material available and to restore it for scientific circulation. The species group taxa names are arranged in systematic order. Each entry includes the species group name, followed by the original combination quoted from the original publication, type locality, type specimens as specified and notes about the type material and current taxonomic status.

The text of the label is quoted in double quotation marks (to assist better recognition, each label is provided with characteristics of the paper). Each line in the text of the label is separated by a slash “/”. In quotations of combined labels (handwritten on printed forms) the handwritten text is reproduced in *italics*; completely handwritten and completely printed labels are quoted in a plain character face.

SATYRINAE Boisduval, [1833]

Coenonymphini Tutt, 1896

magnocellata Krzywicki, 1967

“*Coenonympha oedippus magnocellata* ssp. n.” Krzywicki, M., 1967. Fauna Papilionoidea i Hesperioidea (Lepidoptera) Puszczy Białowieskiej. *Annls. zool., Warsz* 25 (1): 110—111; pl. VIII: figs 1—5, 7—11, 13—23; pl. XXIX: figs 3, 7.

Type locality: [Poland]: Puszcza Białowieska (Krzywicki, 1967: 111).

Paratypes:

- ♂ with labels: (1) handwritten (on white paper) “PUSZCZA BIALOWIESKA / 670 / 21 - VII - 1962 / leg. M. Krzywicki”; (2) handwritten (on white paper, red-violet coloured on the upper side) “*Coenonympha / oedippus / magnocellata / Krzywicki / Paratypus*”.
- ♂ with labels: (1) handwritten (on white paper) “PUSZCZA BIALOWIESKA / 670 / 18 - VII - 1962 / leg. M. Krzywicki”; (2) handwritten (on white paper) “Fauna P. B / tab. VIII. f. 3”; (3) handwritten (on white paper, red-violet coloured on the upper side) “*Coenonympha / oedippus / magnocellata / Krzywicki / Paratypus*”.

The type material, as it was originally stated (Krzywicki, 1967: 111), consists of holotype — ♂ (24 June 1960) and paratypes — 72 ♂♂, 31 ♀♀ with the following dates: allotype (paratype) — ♀ (30 June 1961); 23 June 1960 — 1 ♂; 24 June 1960 — 4 ♂♂;

6 July 1960 — 22 ♂♂, 15 ♀♀; 12 July 1960 — 1 ♂, 2 ♀♀; 30 June 1961 — 11 ♂♂, 7 ♀♀; 18 July 1962 — 6 ♂♂, 1 ♀; 21 July 1962 — 13 ♂♂, 4 ♀♀; 24 June 1963 — 1 ♂; 25 June 1963 — 3 ♂♂; 16 July 1963 — 1 ♂; 23 June 1964 — 9 ♂♂, 1 ♀ (all from Poland: Puszcza Bialowieska, M. Krzywicki leg.); 3 ♂♂, 1 ♀ from 30 June 1961 are deposited in the collection of Instytut Zoologiczny PAN, Warszawa; the rest are in the collection of M. Krzywicki, Lublin. Unquestionably the 2 ♂♂ found in the collection of the Institute of Zoology, Sofia have been transferred subsequently. The second paratype is illustrated in Krzywicki (1967: p. 169: pl. VIII: fig. 3); erroneously dated June in the text explanation (l. c. p. 168).

This taxon has been originally described (Krzywicki, 1967: 110—111) as a different subspecies, *Coenonympha oedippus magnocellata* Krzywicki, 1967, endemic for Puszcza Bialowieska, Poland.

Erebiini Tutt, 1896

***ambicolorata* Varga, 1971**

“*Erebia pandrose ambicolorata* ssp. nova” Varga, Z., 1971. Die Erebiiden (Lep.: Satyridae) der Balkanhalbinsel und der Karpaten III. Die Verbreitung und subspezifische Gliederung von *Erebia pandrose* (Bkh., 1788) nebst Beschreibung einer neuen Unterart: *E. pandrose ambicolorata* ssp. nova. *Acta biologica Debrecina* 9: 230—231; 235: fig. 5 ♂; 236: fig. 8 ♀.

Type locality: after holotype label “Rila-Gebirge, Malak Metschi Vrach (=Spitze), 2300—2470 m” (Varga, 1971b: 231) [Bulgaria: Rila Mts: Malak Mechi Vrah: 2300—2470 m], UTM grid reference 34TGM05; subsequently Abadjiev (1993: 61) erroneously stated “Rila Mts: Moussala Massif: 2200—2925 m”.

Paratypes:

- 9 ♂♂, 3 ♀♀ with labels: (1) printed (on white paper) “Rila, Malak meci / vr. 1.8.1969, Graße / Al Slivov, 2300m”; (2) red printed (on white paper, red framed) with handwritten inscriptions [in red] [here italicized] “*Paratypus / E. pandrose / ambicolorata*”.

Type material depositories originally are not stated (cf Varga, 1971b).

This taxon has been originally described (Varga, 1971b) and also recently treated (Varga, 1975: 10: fig. 4, 12: footnote, 13: fig. 7; Varga & Slivov, [1977]: 174; Ganey, 1985: 119; Abadjiev, 1993: 61; Abadjiev, 1995: pl. XV: figs 12, 13; 120; Jaksic, 1998: 15) as a different subspecies, *Erebia pandrose ambicolorata* Varga, 1971, endemic of the alpine belt of Rila Mts, Bulgaria.

HELICONIINAE Swainson, 1827

Argynnini Duponchel, [1835]

***rilaensis* Varga, 1971**

“*Boloria pales rilaensis* ssp. nova” Varga, Z., 1971. A *Boloria pales* (Denis et Schiffermüller) és a *B. graeca* (Staudinger) (Lep.: Nymphalidae) taxonómiai tagolódása és elterjedése a Balkán-félszigeten. *Acta biologica Debrecina* 9: 215—216, 219: photos 5—8, 220.

Type locality: “Rila hg., Malak Mecsi Vrh 2300—2474 m” (Varga, 1971a: 215) [Bulgaria: Rila Mts: Malak Mechi Vrah: 2300—2474 m], UTM grid reference 34TGM05; in Varga & Slivov ([1977]: 170) and Abadjiev (1995: 56) erroneously given “2200—2500 m”.

Paratypes:

- 6 ♂♂, 2 ♀♀ with labels: (1) printed (on white paper) “Rila, Malak meci / vr. 1.8.1969, Graße / Al Slivov, 2300m”; (2) red printed (on white paper, red framed)

with handwritten inscriptions [in red] [here italicized] “*Paratypus / B. pales / rilaensis*”.

- ♂ with labels: (1) printed (on white paper) “Rila, Malak meci / vr. 1.8.1969, Graße / Al Slivov, 2300m”; (2) printed (on red paper), double framed “PARATYPE ♂ / Boloria (Boloria) / pales rilaensis Varga, 1971 / [line] / label attachment S. Abadjiev, 1999”.
- 2 ♀♀ with labels: (1) printed (on white paper) “Rila, Goljam meci / vr. 2.8.1969, Graße / Al Slivov, 2300m”; (2) red printed (on white paper, red framed) with handwritten inscriptions [in red] [here italicized] “*Paratypus / B. pales / rilaensis*”.

A slight inaccuracy has been detected concerning the dates and type specimen's number of *Boloria pales rilaensis*. Originally Varga stated (1971a: 215): “Holotypus ♂ ... 1969. VIII. 2. leg. et. coll. Z. Varga. [Paratypes]: 21 ♂, 8 ♀ [same data and collection] ... 3 ♂, 1 ♀ [same data; in coll. Természettudományi Múzeum, Budapest], 2 ♂, 5 ♀, leg. Al. V. Slivov [in coll. Institute of Zoology, Sofia]” but on p. 219: figs 5—8 text explanation tells “1969. VIII. 3—5”. Subsequently Varga & Slivov ([1977]: 170) write “4.VIII.1969 — 27 ♂♂ u. 19 ♀♀ / Holotypus und paratypen... /”, including 5 more female paratypes. The specimen illustrated on fig. 5 in Varga (1971a: 219) appears to be the holotype. As an evidence of this statement a reprint of the original publication, available to me, has a handwritten inscription “HOLOTYPUS” (made by Z. Varga himself) to the right of the text explanation of fig. 5. As it can be seen the collection of the Institute of Zoology, Sofia, contains 7 ♂♂ and 4 ♀♀ paratypes and not the originally stated 2 ♂♂ and 5 ♀♀ (cf the above citation). Also there are 2 female paratype specimens labelled “Goljam meci / vr. 2.8.69...”. It should be noted that the two peaks, Golyam Mechi Vrah (2618 m) and Malak Mechi Vrah (2474 m), are situated very near: on the north (the first one) and on the south (the second one) slope of Bistritsa Valley in the vicinity of the famous Makedonia Chalet in Rila Mountains. This fact makes collecting possible on both of them even in the same day.

The recently published (Tuzov, 1999: 231) 2 ♂♂ paratypes from the collection of Zoologische Sammlung des Bayerischen Staates, München differ greatly from the above mentioned type material. The first specimen is surely not a paratype; the date “[19]72.7.28—31” on the locality label shows a year later — 1972 than the date of the original description — 1971. The second one can be treated as a possible paratype (following the locality “Malak Meci/Vrach”), but it also bears an unusual date: 6 July — a somewhat too early appearance for the species in Bulgaria; the flight period here starts (even in good years) not earlier than the middle of July.

Boloria (Boloria) pales rilaensis Varga, 1971 has been treated (Varga, 1971a; Varga, 1975: 11: fig. 5, 14: fig. 8; Varga & Slivov, [1977]: 169—170; Ganev, 1985: 118; Abadjiev, 1992: 20; Abadjiev, 1995: 56; Slivov, 1995: 62; 64: fig. 3a; 66: fig. 5: 3, 4; 67; Abadjiev, 1997: 69, 70, 72; Jaksic, 1998: 17) as a different subspecies, high montane endemic of Rila and Pirin Mountains, Bulgaria.

rhodopensis Slivov, 1995

“*Boloria (S.) rhodopensis* sp. n.” Slivov, A. V., 1995. A review of the species of the genus *Boloria* Moore, 1900 (Lepidoptera, Nymphalidae)... *Acta zool. bulg.* 48: 63—65.

Type locality: “West Rhodopes, Smoljan lakes, 1600 — 1700 m a.s.l.” (Slivov, 1995: 66) [Bulgaria: W Rhodopi Mts: Smolyanski Ezera: 1600—1700 m], UTM grid reference 35TLG01; “Very recently special searches of locating the existence of the species (or other representative of the subgenus *Boloria*) in this area have been done; all of them proved negative... It is necessary to mention here the possible mislabelling of the specimens of the type series...” (Abadjiev & Beshkov, in print).

Holotype:

- ♂ with labels: (1) printed (on white paper) “Rodopi, h. Smol. / ezera, 1600 m / 13-14.7.79, Slivov”; (2) printed (on red paper), double framed “HOLOTYPE ♂ / Boloria (Smoljana) / rhodopensis Slivov, 1995 / Boloria (S.) rhodopensis sp. n. / Slivov, A. V., 1995 / (A review of the species... — / Acta zool. bulg. 48: 63) / [line] / label attachment S. Abadjiev, 1999”; (3) printed (on white paper) “Boloria (Boloria) graeca / (Staudinger, 1870) ♂ [handwritten] / S. Abadjiev det. 1999”; (4) printed (on white paper) “Gen. slide No. 1 / 2.XII.1999 / S. Beshkov prep. / [line] / Boloria (Boloria) graeca / (Staudinger, 1870) ♂ / S. Abadjiev & / S. Beshkov det. 1999”.

Paratypes:

- 17 ♂♂, 3 ♀♀ with labels: (1) printed (on white paper) “Rodopi, h. Smol. / ezera, 1600 m / 13-14.7.79, Slivov”; (2) paratype [11] with handwritten (on white paper) “gen. pr. [in cyrillic] / Nr. / 901”; paratype [12] with handwritten (on white paper) “gen. pr. [in cyrillic] / Nr. / 902”; paratype [13] with handwritten (on white paper) “gen. pr. [in cyrillic] / Nr. / 903”; paratypeS [14] and [15] with handwritten (on white paper) “gen. pr. [in cyrillic] / Nr. / 904”; paratype [16] with handwritten (on white paper) “gen. pr. [in cyrillic] / Nr. / 905”; (3) all the paratypes with printed (on red paper), double framed “PARATYPE [number 1–20 respectively] ♂ [♀ respectively] / Boloria (Smoljana) / rhodopensis Slivov, 1995 / Boloria (S.) rhodopensis sp. n. / Slivov, A. V., 1995 / (A review of the species... — / Acta zool. bulg. 48: 63) / [line] / label attachment S. Abadjiev, 1999; (4) all the paratypes with printed (on white paper) “Boloria (Boloria) graeca / (Staudinger, 1870) ♂ [♀ respectively] [handwritten] / S. Abadjiev det. 1999”.

This taxon has been found taxonomically identical with *Boloria (Boloria) graeca balcanica* (Rebel, 1903); the name *Boloria (Smoljana) rhodopensis* Slivov, 1995 is a junior subjective synonym of *Boloria (Boloria) graeca balcanica* (Rebel, 1903) (Abadjiev & Beshkov, in print).

References

- Abadjiev, S., 1992. *Butterflies of Bulgaria, Part 1, Papilionidae & Pieridae*. Verena Publishers, Sofia.
- , 1993. *Butterflies of Bulgaria, Part 2, Nymphalidae: Libytheinae & Satyrinae*. Verena Publishers, Sofia.
- , 1995. *Butterflies of Bulgaria, Volume 3, Nymphalidae: Apaturinae & Nymphalinae*. Published by the author, Sofia.
- , 1997. Lepidoptera. In: Sakalian, V. (Ed.). *Endemic and Relict Insects in the Pirin National Park, Bulgaria*. Pensoft Publishers, Sofia — Moscow: 69-77.
- Abadjiev, S. & Beshkov, S., (in press). On the identity of some taxa of the genus *Boloria* Moore, [1900] (Lepidoptera: Nymphalidae: Heliconiinae). *Nota lepid.*
- Ganev, J., 1985. Systematic List of Bulgarian Rhopalocera and Grypocera (Lepidoptera). *Phegea* **13** (4): 115-119.
- Jaksic, P., 1998. *Male genitalia of butterflies on Balkan Peninsula with a check-list. Lepidoptera: Hesperioidea and Papilionoidea*. F. Slamka, Bratislava.
- Krzywicki, M., 1967. Fauna Papilionoidea i Hesperioidea (Lepidoptera) Puszczy Bialowieskiej. *Annls. zool., Warsz* **25** (1): 1-213.
- Slivov, A. V., 1995. A review of the species of the genus *Boloria* Moore, 1900 (Lepidoptera, Nymphalidae) from Bulgaria and description of a new subgenus and a new species. *Acta zool. bulg.* **48**: 62-67.

- Tuzov, V. K., 1999. The type-specimens of palaearctic [sic] Nymphalidae in the Zoologische Sammlungen des Bayerischen Staates, München, Entomologisches Museum Eitschberger, Marktleuthen and Deutsches Entomologisches Institut, Eberswalde (Lepidoptera, Rhopalocera). *Atalanta, Würzburg* **29** (1/4): 209-243.
- Varga, Z., 1971a. A *Boloria pales* (Denis et Schiffermüller) és a *B. graeca* (Staudinger) (Lep.: Nymphalidae) taxonómiai tagolódása és elterjedése a Balkán-félszigeten. *Acta biologica Debrecina* **9**: 211-220.
- , 1971b. Die Erebien (Lep.: Satyridae) der Balkanhalbinsel und der Karpaten III. Die Verbreitung und subspezifische Gliederung von *Erebia pandrose* (Bkh., 1788) nebst Beschreibung einer neuen Unterart: *E. pandrose ambicolorata* ssp. nova. *Acta biologica Debrecina* **9**: 227-235.
- , 1975. Geographische Isolation und Subspeziation bei den Hochgebirgs-Lepidopteren der Balkanhalbinsel [sic]. *Acta entomologica Jugoslavica* **11** (1–2): 5-39.
- Varga, Z. & Slivov, A., [1977]. Beitrag zur Kenntnis der Lepidopterenfauna der Hochgebirgen in Bulgarien. *Terrestrial fauna of Bulgaria. Materials*: 167-190.

SUBSCRIBER NOTICE

Publications of the Malloch Society now available

The “official” existence of the Malloch Society can be traced to an Annual General Meeting held in Perth, Scotland, in 1987. It is a group of Scottish-based dipterists who come together for the purposes of field work, study and some socialising. Their particular aim is to study a number of species exclusive to the country and to look more closely at some of the habitats that make Scotland a distinctive part of the British Isles. Since that time a number of investigations have resulted in reports which are available as follows:

- Report No 2. Insects from Shingle banks and Riverside Habitats in Strathspey by Graham E. Rotheray & David Robertson. 1993. 26pp. (£5.00; £7.00 overseas; incl. p & p.).
- Report No 3. An Assessment of the Distribution and Status of Montane Brachycera (Diptera) in Scotland by David Horsfield & Iain MacGowan. 1998. 69pp. (£9.00; £11.00 overseas, incl. p & p.).
- Report No 4. John Russell Malloch (1875-1963), his early life and contribution to entomology in Scotland. by E. Geoffrey Hancock. 1998. 18pp. (£4.00; £6.00 overseas; incl. p & p.).

Other titles are in preparation. The first report (The Entomological value of Aspen in the Scottish Highlands by Iain MacGowan, 1993) is out of print and undergoing revision after which it will be submitted for formal publication to an appropriate journal. The information on this important habitat will thus be made available to a wider audience.

Orders should be sent to Geoff Hancock, Zoology Museum, Graham Kerr Building, University of Glasgow, G12 8QQ, Glasgow, Scotland, UK., accompanied BY a Sterling cheque, payable to “The Malloch Society”.

Hazards of butterfly collecting – round-eye taxi driver, Korea, 1978

Korea is a wonderful place for butterfly collecting. Most of the species are familiar to the European entomologist, yet tantalisingly different, and there is a sprinkling of tropical species as well. It is also an intensely hospitable place, though it is a bit disconcerting to find that your hotel room in the little village is empty – quite literally empty, in the sense that it contains nothing. It turns out that a bedroll and a small writing desk hide behind a cleverly camouflaged sliding door and all is well. Once that is sorted out, there is the pleasure of Korean food.

Undisturbed nature is in rather short supply in Korea and the accessible places are as populated as the national parks in the United States, not least by visiting Japanese who find the prices of Korea attractive. At current rates of tourist development, all of Korea will have been converted to golf courses by the year 2012, and the visitor arriving at Seoul's Kimpo airport might be forgiven his belief that this is the main base for Japan Airlines, spilling out golfers and honeymooners in equal proportion. The mountains of golfing equipment have to be seen to be believed; the honeymooners seem more self-contained and do not bring this mass of impedimenta.

I hired a clapped-out Hyundai car and set off for one of the most beautiful national parks on the east coast, checking into a huge tourist complex, much of which was still a building site. A muddy road, churned up by lorries, led to the park proper and it was indeed a beautiful place. I was very pleased to see that it was also very used. Campers and ramblers were everywhere, and it is nice to see in a country that has been fixated on economic development and urbanisation.

Butterflies were everywhere, a weird mixture of the known and the unexpected. Surely that bounding flight was the skipper *Heteropterus morpheus* which I had last seen in France ten years ago? It was, to the point that it is not even a different subspecies. But the fritillaries ... half were also European, half native to the temperate Far East. And large black tropical swallowtails wended their way through what were obviously temperate forest habitats. And I found a colony of the long-tailed member of the Zerynthini, *Sericinus telamon*, finding that its behaviour in the field was very close to my favourite Lebanese *Allancastris* (1973, *Entomologist* 106:145-152).

On my way back on the muddy road to the hotel, I was flagged down by a young Japanese couple. I stopped. Both entered the back of the car. Which hotel? They spoke no English, in fact they had probably never been in the same car as a European. An increasingly excited babble of Japanese emerged from the back seat. A serious argument was obviously in the making, though the couple were clearly honeymooners. We reached the hotel-complex and stopped. The couple did not get out. The argument continued. Handbags were searched. My attempt at opening the rear door was resisted. What on earth was going on? Finally they left the car. I tried to close the door. The man again

resisted. Suddenly the woman tossed two ten-dollar bills into the car. They had thought I was a taxi. Finding themselves instead with a “round-eye” driver had been the ultimate shock. Then there was also the small question of loss of face. What to do?

With some difficulty, I managed to return the twenty dollars, and to make it clear that I was in no way angry. Five days later we must have bowed ceremoniously to each other close on a hundred times whenever we met. Face and feelings were restored. They even invited me for dinner at a Japanese restaurant in the tourist complex, one of those excruciating experiences when you spend an hour and a half with smiles, nods, oohs, and aahs as the only medium of communication. But I still think they had a good honeymoon.—TORBEN B. LARSEN, 5 Wilson Compound, 2811 Park Avenue, 1300 Pasay City, Metro Manila, The Philippines.
(E-mail: Torbenlarsen@compuserve.com)

***Arhopalus rusticus* (L.) (Col.: Cerambycidae) in Somerset**

On examining his moth trap at Burnham-on-Sea, Somerset (VC6) on 13 August 2000, my son Andrew discovered a large beetle which he thought may be of interest. Between us and our rather limited literature on the subject we strongly suspected it to be *Arhopalus rusticus*. The specimen was sent to my son David at the National Museum of Wales in Cardiff where he confirmed the identification.

In his excellent *Beetles of Somerset*, Andrew Duff (1993), lists only one record – from Crewkerne (VC5) August 1988, given on page 181.—BRIAN E. SLADE, 40 Church House Road, Berrow, Somerset TA8 2NQ.

***Sitaris muralis* (Forst.) (Col.: Meloidae): first modern record for Kent and the London area**

A specimen of this highly distinctive and now very scarce beetle – currently placed in our list under the generic name of *Apalus* (see below) – was noted by my friend Keith C. Lewis in his garden at Welling, in north-west Kent and not far from here, on 3 June 2000. It was on a leaf of mallow, and he proposed to photograph it and then release it. Most unluckily, however, this admirable intention was thwarted, for on returning to the spot with a receptacle he found that the beetle had vanished, and a thorough search proved fruitless. It might be suspected that Mr Lewis was mistaken over the insect's identity, but I am satisfied that that is not the case. It is too unlike anything else, and he had a perfectly clear view of it from two-feet away or less. I believe the record, improbable as it is, must stand. Also, because of the habits of *Sitaris*, a chance introduction from elsewhere seems unlikely.

Nor is there any lack of suitable bee hosts in the vicinity. Not far off, behind a thick mass of ivy, is an old nest-box now occupied by a flourishing colony

of *Bombus lucorum* – a possible breeding-site as the beetle has been recorded from a nest of *B. terrestris*. Alternatively the specimen could perhaps have been a stray from a very suitable-looking flowery site in nearby Danson Park where Mr Lewis has observed the bee *Anthophora acervorum*; this genus is commonly cited as the principal host of *S. muralis*. Naturally he kept a close watch for the rest of the summer and autumn, but without result. The more usual months for the beetle are August and September; June records appear to be much fewer.

The species has been given “Endangered” status (Shirt, D. B., 1987. *British Red Data Books: 2. Insects*), with no record since 1969 (Wheatley, Oxford). Its sustained occurrence in the Oxford district from 1906 to the mid-1940s is well known. The vague old record “Kent” is due to J. F. Stephens; and there are others for London.

A question arises as to the correct generic name of this insect. Modern British works use *Apalus* F. instead of the later *Sitaris* Latr., which has been in use for a very long time. The question, however, is one not of priority but of taxonomy. Here I follow Kaszab in Freude Harde and Lohse, 1969. He places under *Alpus* two species with elytra entire, which appear to represent a genus distinct from *Sitaris*.— A. A. ALLEN, 49 Montcalm Road, Charlton, London SE7 8QG.

***Lymexylon navale* L. (Col.:Lymexylidae) in East Suffolk**

Whilst inspecting the underside of freshly cut, sappy oak planks in the woodyard at Shrubland Park, Coddendam (grid reference TM 1252) on 19 July 2000 with my friend Nigel Cuming, I was surprised to find a female *Lymexylon navale*. We subsequently found the beetle in some numbers nearby, flying in hot sunshine to fresh, longitudinally cut, oak trunk segments. The park has been worked intensively for saproxylic beetles since 1970 but *Lymexylon* has never been detected up until now. The oak trunks which were attracting *Lymexylon* had recently been brought to the yard from a wood distributor in nearby Needham Market. No sign of the beetles’ development site could be detected in the woodyard but, given the number of specimens observed, the beetles were obviously emerging somewhere fairly close by.

This appears to be only the second record of this *Red Data Book* category 2 (Vulnerable) species for the county and the first from a site in which it could naturally occur, the beetle having been added to the Suffolk list by E. A. Elliott (1929. The Coleoptera of Suffolk. Second Supplement. *Trans. Suffolk Nat. Soc.* **1** : 121-126) on the basis of a sketch (*teste* Claude Morley) drawn by a Major Cooper, of larvae which the latter had found in ships’ timbers in a yard at Walberswick on the River Blythe in October, 1924. I thank Lord de Saumarez for allowing me to record on the Shrubland Estate.— DAVID R. NASH, 3 Church Lane, Brantham, Suffolk CO11 1PU.

A RESPONSE TO A. A. ALLEN'S LIST OF NOTABLE CORNISH COLEOPTERA

R. COLIN WELCH

The Mathom House, Hemington, Peterborough PE8 5QJ.

A. A. ALLEN (2000) brought to our attention records of nineteen "Little-known notable" species of Cornish Coleoptera gleaned from a list compiled by Prof J. Clark (1906). Far from being "notable" in the current use of the word, eight are *Red Data Book* species, all but one of which are classified as RDB 1, Endangered. Allen's list also includes three extinct and as many of dubious status. He comments that these records appear to have been "overlooked in the later literature", and also that he is "aware of no later beetle list for the county".

Through a long-standing interest in the beetle fauna of Lundy, I have in my possession a reprint of a paper by K. G. Blair (1931) most of which comprises a table listing a total of more than 1350 species from the following localities – St. Mary's, Tresco, and other (Scilly) islands; Lundy; Braunton; and the Cornish coast. Of these, 223 species were from the Atlantic coast of Cornwall, 50 of which were recorded by more than one collector. The following six coleopterists contributed records: K. G. Blair recorded 94 species from St. Merryn, near Padstow, during 1925; E. A. Butler, 73 species, most from within three miles of Tintagel and a few hours at Boscastle and Camelford (1909); W. E. China, 40 species, 1930, Pendeen, near St. Ives; O. W. Richards, 20 species, August 1924, from various localities in the Land's End peninsula; P. de la Garde, 13 species from the marshes at Bude, North Cornwall, on 27.xii.1909 and 5.i.1910 (1910); seven species attributed to Canon W. W. Fowler are listed in the supplementary volume of the *Coleoptera of the British Isles* by himself and H. St. J. Donisthorpe (1913) and refer to records by Crawshay, E. Davies, C. J. Lamb, and J. R. le B. Tomlin. Fowler also includes some, but by no means all, of Butler's (1909) captures.

Only two of the Cornish species referred to by Allen appear in Blair's list. *Olibrus particeps* Muls. is recorded from Lundy by Dr N. H. Joy; from Braunton by Blair, de la Garde and E. M. Eustace; and from the Cornish coast by Blair and China; although Allen considers records of this species are likely to refer to *O. affinis* Sturm. *Pleurophorus caesus* (Pz.) is listed from Tresco based on C. W. Dale's record (1896), and a queried entry from "other islands" by F. Holme in 1836. Blair was apparently under the impression that Dale took a single individual which he considered "was most likely introduced with foreign plants". In fact Dale reported taking "two or three specimens". In a footnote to Dale's note G. C. Champion records that he had seen (but not retained) one of the specimens. The undated Tresco specimen in his collection must surely have been collected at a later date. Holme (1896) collected two specimens of a *Psammobius* ? on Samson which were devoured by *Cafii* in his

bottle. Blair comments that although these “may have been this species . . . it is more probable that these were *P. sulcicollis*” (Ill.) (= *asper* (F.)).

Of the 223 Cornish Coleoptera listed by Blair, five are now given *Red Data Book* status, and 24 are classified as Nationally Notable, by Hyman & Parsons (1992, 1994). A few of these are worthy of comment. Blair's record of the RDBK species *Leiodes picea* (Pz.) should be disregarded. Cooter (1996) considers this species to be “confined to Scotland and northern England as far south as Derbyshire”, and regards a Fowler record from Kent as “in error”. He appears to have been unaware of the Cornish record. Three Notable Staphylinidae, *Paederus fuscipes* (Curt.), *Calodera riparia* Er., and *Erichsonius* (as *Actobius*) *signaticornis* (Muls. & Rey), were recorded from Bude by de la Garde but were not included in Fowler and Donisthorpe's (1913) “Additional localities, notes, etc.”, although they do include a record of his for the last species from Christow (Devon). Similarly Blair's record of the chrysomelid *Ochrosis ventralis* (Ill.) from St. Merryn was overlooked by Hyman & Parsons (1992). Other Notable species recorded by Blair are the ptinid, *Ptinus seipunctatus* Pz. the curculionid, *Sitona waterhousi* Walzl, and the RDB2 cerambycid *Gracilia minuta* (F.). The location of this last species appears to have been incorporated in Twinn & Harding's Provisional Atlas (1999). Two other Notable species in Blair's list are O. W. Richards' record of the silphid, *Nicrophorus interruptus* Steph. and W. E. China's *Allophus triguttatus* (F.).

References

- Allen, A. A., 2000. Little-known notable records of Cornish Coleoptera. *Entomologist's Rec. J. Var.* **112**: 211-213.
- Blair, K. G., 1931. The beetles of the Scilly Islands. *Proc. Zool. Soc.*, 1211-1258.
- Butler, E. A., 1909. *Cathormiocerus maritimus* Rye and other Coleoptera in North Cornwall. *Entomologist's mon. Mag.* **45**: 39-40.
- Clarke, J. 1906. In Page, W. *The Victoria History of the County of Cornwall, Coleoptera*. London.
- Cooter, J. 1996. Annotated keys to the British Leiodinae (Col.: Leiodidae). *Entomologist's mon. Mag.* **132**: 205-272.
- Dale, C. W., 1896. *Psammobius caesus*, Panz. in the Scilly Isles. *Ibid.* **32**: 41.
- Fowler, W. W. & Donisthorpe, H. St. J., 1913. *The Coleoptera of the British Islands*, **6**, Reeve & Co., London.
- Holme, F., 1836. Notice of the Coleopterous Insects observed in the Scilly Islands. *Trans. Ent. Soc. Lond.*, **2**: 58-64.
- Hyman, P. S. & Parsons, M. S., 1992, 1994. A review of the scarce and threatened Coleoptera of Great Britain, parts 1 & 2, *U.K. Nature Conservation*, nos. **3 & 12**.
- Twinn, P. F. G. & Harding, P. T., 1999. *Provisional atlas of the longhorn beetles (Coleoptera, Cerambycidae) of Britain*. Huntingdon, Biological Records Centre.
-
-

Fifth update of early emergences of moths at Selborne, Hampshire

This table continues the comparison (*Ent. Rec.* **112**: 183-185) between my earliest observations of non-hibernatory species in 1992-94 and those in 1995-97. The m.v. light was run here on just over 320 nights during each year of the survey. Of these next 42 species, 29 arrived earlier in 1995-97 than in 1992-1994. One species shared the same earliest date in both periods. 12 species were seen in a month earlier than is usually expected.

These updates have now covered 183 species, of which 132 arrived earlier in the second period, 1995-97. Seven other species shared the same date. 68 species were noted in a month earlier than is usually expected.

Species	1995-1997	1992-1994	MBGBI imago
2422 <i>Pseudoips prasinana britannica</i> (Warren)	26 May 97	31 May 92	May, Jun
14 <i>Hepialus humuli humuli</i> (Linn.)	27 May 95	15 Jun 93	Jun, Jul
937 <i>Agapeta hamana</i> (Linn.)	27 May 95	4 Jun 93	May-Sep
1082 <i>Hedya pruniana</i> (Hb.)	27 May 95	13 Jun 94	May-Aug
2321 <i>Apamea monoglypha</i> (Hufn.)	27 May 97	23 May 93	Jun-Aug
2434 <i>Diachrysia chrysitis</i> (Linn.)	27 May 97	30 May 93	Jun, Jul
1334 <i>Scoparia ambigualis</i> (Treit.)	28 May 95	22 May 92, 3	May-Aug
1991 <i>Deilephila elpenor</i> (Linn.)	28 May 95	29 May 93	May, Jun
2216 <i>Cucullia umbratica</i> (Linn.)	28 May 97	10 Jun 93	Jul, Aug
2338 <i>Oligia versicolor</i> (Borkh.)	28 May 95	2 Jun 94	Jun, Jul
2442 <i>Autographa pulchrina</i> (Haw.)	28 May 97	1 Jun 94	Jun, Jul
1293 <i>Chrysoteuchia culmella</i> (Linn.)	29 May 95	9 Jun 93	Jun-Aug
1835 <i>Eupithecia tripunctaria</i> (H.-S.)	29 May 95	9 Jun 93	May
1018 <i>Cnephasia communana</i> (H.-S.)	30 May 96	20 Jun 94	May-Jul
1109 <i>Lobesia littoralis</i> (Humph. & Westw.)	30 May 97	9 Jun 93	Jun, Jul
1333 <i>Scoparia pyralella</i> (D.&S.)	30 May 97	4 Jun 93	Jun, Jul
2170 <i>Hadena compta</i> (D.&S.)	30 May 97	9 Jun 93	Jun, Jul
1765 <i>Cidaria fulvata</i> (Forst.)	31 May 97	9 Jun 94	Jun, Jul
1782 <i>Horisme tersata</i> (D.&S.)	31 May 95	25 May 94	Jun-Aug
1825 <i>Eupithecia centaureata</i> (D.&S.)	31 May 97	8 Aug 93	Apr-Sep
1830 <i>Eupithecia absinthiata</i> (Cl.)	31 May 97	31 May 92	Jun, Jul

Species	1995-1997	1992-1994	MBGBI imago
2334 <i>Apamea sordens</i> (Hufn.)	31 May 95, 97	22 May 94	May, Jun
870 <i>Oegoconia quadripuncta</i> (Haw.)	1 Jun 95	10 May 94	Jul, Aug
1458 <i>Myelois circumvoluta</i> (Fourc.)	1 Jun 95	4 Jun 93	Jul, Aug
1711 <i>Idaea trigeminata</i> (Haw.)	1 Jun 97	7 Jun 93, 4	Jun, Jul
1816 <i>Eupithecia linariata</i> (D.&S.)	1 Jun 95	16 Jun 92	Jul, Aug
1860 <i>Chloroclystis rectangulata</i> (Linn.)	1 Jun 97	4 Jun 93	Jun, Jul
2205 <i>Mythimna comma</i> (Linn.)	1 Jun 97	8 Jun 93	Jun, Jul
2333 <i>Apamea anceps</i> (D.&S.)	1 Jun 97	8 Jun 93	Jun, Jul
1178 <i>Epiblema roborana</i> (D.&S.)	2 Jun 97	6 Jun 93	Jul, Aug
1376 <i>Eurrhynx hortulata</i> (Linn.)	2 Jun 96	10 Mar 93	May-Aug
1875 <i>Asthena albulata</i> (Hufn.)	2 Jun 97	23 May 92	May-Jul
1995 <i>Cerura vinula</i> (Linn.)	2 Jun 97	15 May 94	May-Jul
1998 <i>Furcula bifida</i> (Brahm)	2 Jun 97	10 May 94	May-Jul
2138 <i>Anaplectoides prasina</i> (D.&S.)	2 Jun 97	3 Jun 93	Jun, Jul
1338 <i>Dipleurina lacustrata</i> (Panz.)	3 Jun 97	11 Jul 94	Jun, Jul
2279 <i>Acronicta aceris</i> (Linn.)	3 Jun 97	5 Jun 92	Jun-Aug
2199 <i>Mythimna pallens</i> (Linn.)	4 Jun 95	8 Jun 93	Jun-Sep
385 <i>Anthophila fabriciana</i> (Linn.)	5 Jun 96	13 May 92	May-Nov
649 <i>Esperia sulphurella</i> (Fabr.)	5 Jun 96	13 May 93	May, Jun
1013 <i>Olindia schumacherana</i> (Fabr.)	5 Jun 95	21 Jun 94	Jun, Jul
1301 <i>Crambus lathoniellus</i> (Zinck.)	5 Jun 97	29 May 93	May-Aug

– ALASDAIR ASTON, Wake's Cottage, Selborne, Hampshire GU34 3JH.

EDITORIAL NOTE: Alasdair Aston's regular summaries of species emerging earlier than expected provide a valuable ongoing record. For the benefit of new subscribers, earlier summaries may be read in this journal at **106: 116; 107: 4; 107: 191; 110: 54; 110: 189; 111: 134; 111: 220; 111: 286 and 112: 183-185.**

Little-known entomological literature – 6

Doing my usual weekly rounds of the local charity shops I came across a book I was quite certain I already had, the title being *Butterflies of Berkshire, Buckinghamshire & Oxfordshire* by Caroline and David Steel. The size and format of the book not ringing a bell, combined with the fact that it was a paperback whereas I thought my copy was a hardback together with the price being modest induced me to buy it anyway on the grounds that any second copies I have can be passed on to my entomological son. On checking back at home, however, yes indeed I did have a book with that title but preceded by the definitive article “The” and by a different author, Jim Asher. Both books have the same publisher, Pisces Publications, and were published in 1985 and 1994 respectively. Now this is not the first time I have been confused by either similar, or even the same, title for entirely different books, but I have also found the same book under different titles. With around one thousand books on butterflies having been published in Great Britain alone it is not surprising that it is extremely difficult, if not now impossible, to select a suitable title that is not the same as, or very similar to, that of another, or indeed several other previously published books.

It needs to be noted that the “Title” of a book can vary according to where you look for it. In a number of cases the so-called “Title” can be found not just on the Title page, but also in two other places where it can either agree in all three, in two or even have three versions, particularly when it is a lengthy one. These are positioned on the outside binding, where the spine may bear also a shortened version; on the for-title page; on the Title-page itself. In the list following I have taken the Title-page to be definitive, except when it does not exist, in which case I quote the Title on the outside of the binding. In this short article I deal only with books bearing the word “butterfly” or “butterflies” in the title. Those marked with an * were either seen in a Public Library some time ago or recorded from an internet search. Unfortunately I did not take fuller details at the time, but feel they are still worth noting. The measurements given for some of the books are in centimetres. Readers may well be able to add to those I list below.

Title: Butterfly

Algermissen, Jo Ann (1989)*

Andrews, Virginia (1999)*

Anon (1991) Doubleday. pp 13. 16 x 16

Anon (1992)*

Butler, Gwendoline (1996) Seven House Publishers Ltd. 8vo pp 249.

Dunn, Opal (1991) Doubleday. ISBN 0 385 40058 6, pp12. 16 x 16.

Harvey, Kathryn (1989)*

Inkpen, Mick (1999)*

Ling, Mary (1992) Dorling Kindersley. sq. 8vo. pp 21

Title: Butterflies

- Althea (1977) Longman. ISBN 0 582 39081 8 pp 23. 21 x 17
Anon (1994) Dragons World. ISBN 1 85028 287 0
Anon (1972) MacDonald Educational. pp 26. 20 x 15.5.
Anon (1999) Grange Books. ISBN 1 84013 143 8. pp 64 18 x 14.
Anon (1987) Readers Digest/National Trust. ISBN 0 276 40947 7, pp128. 20 x 20.
Dunn, Opal (1991) Doubleday. ISBN 0 385 40058
Everett, Eileen (1966) Wheaton of Exeter. pp 24. 18 x 14.
Fitzsimons, Cecilia (1985) Penguin Books Ltd. ISBN 0 670 80356 1 00 13 17 x 17.
Ford, E. B. (1945) Collins. pp 368. 21.5 x 15.
Goodden, Robert (1971) Hamlyn, London. ISBN 0 600 00073 7. pp160. 18 x 11.
Harwood, David (1990) World International Publishing Ltd. ISBN 0 7235 3849 2
Hyde, George E. (1974) Almark Publishing Co. Ltd. ISBN 85524 197 7. pp 64.
22.5 x 19.
Smith, Arthur & Shearer, Vernon (1961) Penguin Books Ltd. pp 28. 18 x 22.
Sontag, Linda (1980) Hutchinson. ISBN 0 09 1432200 6. pp 56. 15 x 11.
Watson, Alan (1981) A kingfisher Guide.
Whalley, Paul (1979) Hamlyn Publishing Group. ISBN 0 600 31456. pp 128.
18X12.

Title: British butterflies

- Coleman, W. S. (1860) George Routledge & Sons, pp 179. 15 x 10
Duncan, James (1840) W. H. Lizars. pp 246. 17 x 11.
Ford, E. B. (1951) Penguin Books. pp 32. 18 x 12.
Hyde, George E (1950) Adam & Charles Black. pp 96. 1913.
Hyde, George E. (1973) Jarrold & Sons. 2 vols pp 32: 32. 19 x 13.
Morrison, Paul (1987) Jarrold & Sons. ISBN 0 7117 0309 4. pp 64. 16.5 x 12.
Stewart, A. M. (1912) A. & C. Black, pp 88. 19 x 13.
Temple, Vere (1949) Collins. pp 48. 22 x 16.
Tutt, J. W. (1896) George Gill & Sons. pp 476. 18 x 12.

Title: The Butterfly

- Caine, James (1949).The butterfly.8vo pp79. Robert Hale Ltd.
Nash, Pamela 1971) MacMillan Education Ltd. ISBN 333 12188 0 pp 16 21 x 16.
Nicolas, Claude (1974) W & R Chambers Ltd. pp 24 ISBN 0 550 31912 3 18 x 20.
Ritchie, T. (nd [1940s?]) Chatto & Windus. pp 12. 8.5 x 6.5
Sheehan, Angela (1976) Angus & Robertson
Sheehan, Angela (1979) Pan Books Ltd. ISBN 0 330 25752 8. pp 24. 22 x 17.
Sheehan, Angela (1976) Galley Press. ISBN 0 86136 843 6. pp 26. 22 x 17.
Barrie, Anna (1996)*

Title: Butterflies & moths

- Anon (1948) Windsor & Newton Ltd. pp 18. 11 x 13.
Anon (1973) Macdonald Educational Ltd. ISBN 356 04284 7. pp 32. 18.5 x 15.5.

- Carter, David (1992) Dorling Kindersley. ISBN 0 7513 1002 6. pp 304. 21 x 14.
- Chinery, Michael & Hargreaves, Brian (1981) Collins. ISBN 0 00 458808 8. pp 240. 11.5 x 8.
- Corti, Dr Walter Robert (1964) Paul Hamlyn Ltd. ISBN 0 356 03995 1. pp 10 x 6
- Cox, Rosamund Kidman (1980) Usborne. ISBN 0 86020 477 4. pp 24. 20 x 19.
- Feltwell, John (1993) Dorling Kindersley A5 pp 61.
- Firmin, Joe (Ed) (nd) Dinosaur Publications Ltd. ISBN 0 85122 157 2. pp 33. 21 x 9.5
- Gagg, J. C. (1971) Basil Blackwell. ISBN 0 631 95600. pp 16. 16 x 13.
- Kelman, Janet Harvey (nd) Thomas Nelson & Sons Ltd. pp 94. 16 x 11.
- Leigh-Pemberton, John (1978) Ladybird Books Ltd. pp 53. 17 x 11.
- Lousada, Sebastian (1984) Webb & Bower (Publishers) Ltd. ISBN 1 85627 306 7. pp 48. 14 x 10.5.
- Lousada, Sebastian (1993) Grange Books. ISBN 1 85627 306 7.
- Novak, Ivo (1980) Octopus. ISBN 0 7064 1293 1. pp 352.
- Novak, Ivo (1995) Magna Books. ISBN 1 85423 854 4. pp 224. 21 x 14.5.
- Robson, Denny (1986) Hamish Hamilton. 4to. pp 32 ISBN 0 241 11819 0.
- Smith, Anne (1990) Wayland (Publishers) Ltd. Oblong 8vo pp 44.

Title: British butterflies & moths

- Chinery, Michael (1995) HarperCollins. ISBN 0 00 220020 1. pp 230. 8 x 20.
- Stainton, H T (1867) Reeve & Co. pp 292. 19 x 12.5.
- Vincent, Isobel St. (nd) Blackie & Son Ltd. *
- Westell, W. Percival (nd) Chapman & Dodd. pp 106. 18 x 13.5.

Title: Butterflies & moths of Britain & Europe

- Guggisberg, C. A. W. (1975) G. T. Foulis & Co. Ltd. ISBN 0 85429 500 3.
- Pfletschinger, Hans (1986) Longman Group Ltd. ISBN 582 89312 7. pp 79. 17 x 12.
- Still, John (1996) Harper Collins ISBN 000 220010 4. PP 253. 17 x 10.

Books with variant titles but the same text and illustrations include the following:-

- Moucha, Joseph (1974) Octopus Books Ltd. *A colour guide to familiar butterflies caterpillars and chrysalides*.
- (1993) Chancellor Press *A field guide in colour to butterflies caterpillars and chrysalides*.
- Goodden, Robert and Rosemary (1991) New Holland (Publishers) Ltd. *The concise guide to butterflies of Britain and Europe*. ISBN 85368 107 5.
- (1992) New Holland (Publishers) Ltd. *Green guide to butterflies of Britain and Europe*. ISBN 85368 171 7
- (1991) New Holland (Publishers) Ltd. *The Lomond guide to butterflies of Britain and Europe*. ISBN 0 947782 567.
- All three have the same text and illustrations but different ISBN numbers.
- Daccordi, M., Triberti, P., & Zanetti, A. (1988) *Simon & Schusters guide to butterflies & moths*. A Fireside book published by Simon & Schuster.

(1988) *The MacDonald Encyclopedia of butterflies and moths*. Macdonald & Co. (Publishers) Ltd.

Porter, Keith (1986) *Discovering butterflies & moths* is the same as Smith, Anne (1990) *Butterflies & moths*, Wayland (Publishers) Ltd.

Kelman, Janet Harvey described by Wood, Rev Theodore (nd [1926]) T. C. & E. C. Jack Ltd. *Butterflies and moths shown to the children*. (nd [1939]) Thomas Nelson and Sons Ltd. *Butterflies and moths*. Anon (=Janet Harvey described by Wood, Rev Theodore) (nd) T. C. & E. C. Jack Ltd. *The child and the butterflies*. (nd) T. C. & E. Jack. Same text and colour illustrations but has added monochrome figures in the text and a series of questions and exercises.

– BRIAN O. C. GARDINER, 2 Highfield Avenue, Cambridge CB4 2AL.

Is the Orange Ladybird *Halysia sedecimguttata* (L.) (Col.: Coccinellidae) a migrant?

A. A. Allen published a note on the occurrence of *Halysia 16-guttata* at light in a London suburb and made some general comments on the species in 1996 (*Ent. Rec.* **108**: 298). This note was followed by a supplementary one in 1997 (*Ent. Rec.* **109**: 125), in which he suggested that the specimen previously recorded could have come an indefinite distance. He then suggested the possibility of the species being a migrant.

My own observations on this species during 2000 suggest either migration or, at least, some form of mass movement in this country. On the night of 16-17 June 2000, fifteen specimens were caught in my light trap here at Grange-over-Sands, in Cumbria (grid reference SD 4071). These were all in a cluster on one side of the trap. There were also one or two examples of the beetle in the egg trays, but these were not counted. Trapping on the previous few nights had not produced any Coccinellidae, nor did the following nights, in spite of good weather conditions. On the night of 21-22 July, eleven more examples were present, again in a cluster on the inside of the trap. Trapping was continued nightly, and the next observations were 25-26 July and 30-31 July, when one specimen was caught on each night. Since that last date, no further sightings have been recorded here.

These data suggest that, perhaps, some form of mass movement of the species occurred in June and July and it would be of considerable interest to learn if any similar observations were made elsewhere on or about the same dates.

Recent notes in this journal are of interest, and perhaps relevance, to my observations. Aggregations of *H. 16-guttata* are reported from southern England in Epping Forest (Mabbot, *Ent. Rec.* **112**: 100-101), Cambridgeshire (Everett, *Ent. Rec.* **112**: 101-102), south London (Jones, *Ent. Rec.* **112**: 102) and Buckingham Palace Garden (Plant & Lane, *Ent. Rec.* **112**: 103-104). Perhaps the specimens in my trap had spent the previous winter as guests of Her Majesty The Queen? How honoured I should feel if this could be proved – more so than had they been associated with a stone angel in a cemetery.

Halyzia 16-guttata can not be considered a common insect in northern England, as is indeed indicated by the distribution map given by Majerus & Williams (1989. *Ent. Gaz.* **40**: 71-78).— NEVILLE L. BIRKETT, Beardwood, Carter Road, Grange-over-Sands, Cumbria LA11 7AG.

On the binding of journals and their supplements

Back around 1840 some Victorian clever-dick found a cheaper and convenient way of binding books instead of sewing them. It was known as gutta-percha, a rubber-like substance, which held single sheets glued together. Unfortunately it proved to have a limited lifespan of not more than 40 years. An excellent example of this is to be seen in most of the magnificent books by H. Noel Humphreys such as his *Genera of British Butterflies*.

This mishap was followed by metal stapling, the book signatures being stapled onto a strong canvas backing and the book then bound in the normal way. Unfortunately, under the conditions most such books have been kept over the years the staples have rusted away, leaving a brown stain on the pages with the paper rotted around them and the book therefore difficult and expensive to repair. An example is the *Fenland Past and Present* by Miller & Skertchley. It is fortunate indeed that tradition prevailed and the majority of books continued to be sewn together with linen thread.

Another disaster is now in the offing, however, since over recent years the gutta-percha method, using plastic glue this time, has been revived and is known as “perfect binding”. While it would appear (time may yet tell) that plastic glues are longer-lasting than gutta-percha, it is extraordinary just how many such books start to lose pages and break apart when they are subjected to more than occasional use.

A good century ago journals, part-works and thin ephemeral items, started to use staples instead of each part being sewn. This is fine when they are regularly bound up year upon year, but those kept in their separate parts gradually suffer from rusting with passage of time, unless as sometimes occurs in recent times, they are of stainless steel. Sometimes they are side stapled and this is an abomination which makes the journal difficult to read as the opened pages refuse to lie flat making reading difficult without using both hands to hold the pages down.

In the early days of many journals they were issued in thin sections of four, eight or sixteen pages and with the edges untrimmed and with wide margins and tended to be sewn with a single cotton thread, the plates tipped in or sometimes loose. Easy to take apart, bind and trim. Stapling gradually became the norm. Fine while the sections were still fairly thin, but we now have anything up to 96 page sections and these are far more difficult to bind up and make a decent book out of. Paper too has changed and is now more dead white in colour rather than the “off-white” of the past and is often glossier and heavier, again making binding more difficult.

Another bad habit, even worse than side stapling, is the modern use of plastic glue as opposed to animal glue and flour paste which was used in book-binding for several centuries and which had the enormous advantage that it could be removed, either by rubbing it off between finger and thumb when it was on small sections, or by first wetting it with clean water. Plastic glue, on the other hand is almost impossible to remove without damaging the paper and it is sometimes laid on so thick (at least 1/8 inch thick I have found on occasions) that its cost must have exceeded that of the traditional thin layer of animal glue. One of the worst offenders used to be *The Entomologist's Gazette*, which then compounded the offence by at the same time using side-stapling, making it not only difficult to bind, but more expensive so to do. The reduction in frequency of publication now means that many journals now consist of 64 or more pages per issue more. I am pleased to say, however, that *The Record* has been and remains one of the easiest entomological journals to satisfactorily bind into a hardback volume. More and more journals today are saving paper by not having any margins, with illustrations in particular often being bled right to the edge. This leaves no scope for trimming after the sections have been sewn together and hence the edges not only look uneven, but also dirty. The three worst offenders of this respect are the new magazine *Atropos*, together with *Butterfly Conservation News* and *British Wildlife*.

Over their life-time, and still continuing, nearly all journals have published "Supplements" of one kind or another. These are either in the short term on a specialised subject or else, due to their length, they are a long-running saga which may extend over many years. The question arises, how should they be bound? There are two alternatives – with the yearly volume of the journal, or as a separate volume. Such supplements are almost always separately paginated, often in parenthesis, but sometimes run on with the normal pagination and occasionally with both! They may also be graced with an individual title page and offered for sale as an individual entity. Are they or are they not to be considered an integral part of the journal? Opinions clearly differ and I have come across both variations and indeed some libraries may contain a complete run of the journal but not have the supplements. To the user, which is the more convenient, to have the supplement which may be of interest to him spread over many issues, or conveniently collated into one separate volume? A long-running saga clearly needs to be bound separately as otherwise, particularly when an index is also supplied, the problem of referring to a particular entry over many volumes becomes tedious in the extreme. Examining various volume in my library I find that back issues bought over the years sometimes contain the supplements, sometime they are missing.

The Record has been one of the more prolific issuer of supplements, starting in 1922 (unless I have missed any earlier ones) and these varied from a few pages to the long-running saga of the supplement to Tutt's *British Noctuae and their varieties* which ran for twenty-four years and four volumes, nearly

as long as the original! Quite clearly both this and the more recent *Butterflies & moths of Kent*, issued with their own title pages, both deserve, indeed must, be bound separately, but it is also my opinion that they should be kept with, as an integral part of, any “run” of the journal. Readers may be interested to know that my *Record* supplements are bound into separate volumes, occupy seven inches of shelf space and are kept with my long run of the *Record*.—
BRIAN O. C. GARDINER, 2 Highfield Avenue, Cambridge CB4 2AL.

Dusky Sallow *Eremobia ochroleuca* (D. & S.) (Lep.:Noctuidae) in Lancashire and some notes on other species

During a moth trapping session at Bold Moss, St Helens (Merseyside) on 20 July 2000, Ray Banks was somewhat surprised to find a single Dusky Sallow in his m.v. light-trap. This is the first known record for “Lancashire”, but the second for VC 59 (see below). The surprise of the local mothing community turned to incredulity when a second was found at Heysham Nature Reserve, near Lancaster by Pete Marsh on 26 July (the first for VC 60) and yet another came to light at Flixton, Greater Manchester (VC 59) on 2 August (Kevin McCabe).

In adjacent counties the moth has been noted from Risley Moss, Cheshire (which is actually in VC 59 – South Lancashire), when two were found during a field meeting on 24 July 1982 (*Macro-moths of Cheshire 1961 to 1993* by C. I. Rutherford). This is the only known “Cheshire” record and there are none known from Cumbria (Kydd & Hewitt, 2000. *A Checklist of the Butterflies and larger Moths of Cumbria*). By contrast, the species has been quite widely recorded in most of the vice counties of Yorkshire (Sutton & Beaumont, 1989. *Butterflies and Moths of Yorkshire*), undergoing a significant range expansion from the early 1970s, though it is less frequently recorded in the north and west of that county.

The dramatic and relatively widespread arrival of this species in Lancashire over such a short time period tends to indicate immigration rather than an overlooked resident population. It will be interesting to see if further records, particularly in counties to the south and south-west of Lancashire back up the immigration theory or not. The locations of the sites in Lancashire where the species occurred (south-west, north-west and south, respectively) seem to rule out an arrival from the Yorkshire population, but it should be borne in mind that far fewer traps are run in east Lancashire than in the south and west. The wind over the period was quite variable being north-westerly on 19 and 20 July, then turning easterly from 22 to 25 July, thereafter ranging from west anticlockwise to south, or calm, until the month end.

Whether this set of records is the precursor to a more general spread of the species in the county, as happened in Yorkshire in the past, or was simply a one-off occurrence, remains to be seen. Other moth species that are consolidating their earlier range expansions into Lancashire include Blair’s

Shoulder Knot *Lithophane leautieri* (Boisd.), now widespread and common throughout the county and the Red Underwing *Catocala nupta* (L.) and the pyralid *Myelois circumvoluta* (Geoff.), both of which are locally common.

By contrast, it is comforting to report that in this rapidly changing world, at least one species seems to have remained static in its range within the western half of Britain. *Zeuzera pyrina* (L.), the Leopard Moth, continues to be reported in the extreme south of VC 59, with two records from different sites in Flixton, Greater Manchester during July 2000 (Brian Hilton and Kevin McCabe). Its northern limit has remained the same since at least the 1930s when it was noted in Crosby, north of Liverpool. A single record from Cumbria in 1931 (Kydd and Hewitt, *op. cit.*) is given as accidental.— S. M. PALMER, 137 Lightfoot Lane, Fulwood, Preston, Lancashire PR4 0AH. (E-mail: Palmer01@genie.co.uk)

***Atomaria scutellaris* Motschulsky (Col.:Cryptophagidae) in East Suffolk**

Atomaria scutellaris, a beetle with an essentially Mediterranean distribution, was added to the British list in 1968 on the basis of specimens taken in the Scilly Isles by K. G. Blair in 1932 (Allen, A. A., *Ent. Rec.* **80**: 318–326). It has subsequently been reported from Cornwall, Sussex and Surrey, whilst Johnson, in his provisional atlas of the Atomariinae (1993, Huntingdon, Biological Records Centre, p. 59), commented that it now seems to be extending its range inland in southern England.

Confirmation that the beetle is continuing to extend its range was obtained when, whilst collecting close to Freston Wood near Ipswich on 12 July 2000, I beat a single specimen from an old oak beside an arable field. The location is about 300 metres from the River Orwell estuary (OS grid reference TM 1740). This would appear to be the first published East Anglian capture.

I thank Mr S. Paul for permission to record on the Freston Estate and my friend Colin Johnson for confirming that he, too, is unaware of any published East Anglian captures.— DAVID R. NASH, 3 Church Lane, Brantham, Suffolk CO11 1PU.

***Xanthandrus comtus* (Diptera, Syrphidae): new to Shetland**

On 16 September 2000 I was looking for winged migrants at Norwick on the island of Unst in Shetland. Birds were proving elusive, but I noticed that the flowers of the *Rosa rugosa* bushes were covered in hoverflies. I checked several large clumps of *Rosa* and discovered that the flowers were host to many *Episyrphus balteatus*, along with a scatter of *Syrphus* sp. (two specimens taken were identified as *Syrphus torvus*, a single *Meliscaeva auricollis* and *Scaeva selenitica* – all immigrants. However, I soon noticed a shiny black hoverfly, which I suspected was *Xanthandrus comtus*, a species I knew had been recorded in Faroe (J-K Jensen pers. comm.). I collected two of

the three insects found on bushes around Norwick and then, when I returned home, checked bushes around my garden at Baltasound on Unst, where a further two individuals were seen. The identity of the specimens was confirmed in Stubbs & Falk (1993, *British Hoverflies*. BENHS). I phoned Terry Rogers who lives at Eswick in central Mainland, Shetland and told him to look out for the species. Although he did not find any in his garden in the dull weather that day, he found five and collected two specimens the next day, 17 September 2000. *Xanthandrus comtus* is an addition to the recently published list of Shetland hoverflies (Pennington 1999, *Dipterists Digest* 6: 93-104). It has been suggested (Shaw & Rotheray, 1990. *Entomologist's mon. Mag.* 126: 258) that this species occurs in Britain primarily as an immigrant. These Shetland records add credence to this possibility.— M. G. PENNINGTON, 9 Daisy Park, Baltasound, Unst, Shetland ZE2 9EA.
(E-mail: mike@pennington.shetland.co.uk)

Two, possibly new, aberrations of British butterflies

On 12 August 2000, I took a male Brimstone butterfly *Gonepteryx rhamni* with black scaling in all four of the orange discoidal spots on the upper side of the wings. I am not sure if this is a new aberration, but it must surely be sufficiently rare to warrant recording here.

On the same subject, some time ago I purchased a small cabinet and this contained the remains of a once interesting collection of British butterflies and moths, most of which were by now beyond repair. However, the specimens in some drawers were better preserved and amongst these were three Green hairstreak *Callophrys rubi*, two males and one female, taken at Brook, in the Isle of Wight. On the upper side of the fore wings of the males, three millimetres from the sex cell between nervures 9 and 10, there is a white dumbbell-shaped mark, about two millimetres in length, on each wing. The same mark is present on the female, but is positioned between nervures eight and nine. Having searched my rather extensive collection of books I can find no reference to this aberration.— K. F. WILLIAMS, Arcanum House, 45 Braunston Road, Daventry, Northamptonshire NN11 5BY.

***Evergestis extimalis* (Scop.) (Lep.: Pyralidae) in Somerset**

On 24 September 2000, Doug Miller brought to me a rather worn pyralid moth which he had caught the previous night at Westonzoyland, Somerset (VC6). We strongly suspected it to be *Evergestis extimalis*, however, its condition did not help. I decided to set it and take it to my son David at the National Museum of Wales, Cardiff where he confirmed the identification. This appears to be the first County record, unless someone out there knows otherwise.— BRIAN E. SLADE, 40 Church House Road, Berrow, Somerset TA8 2NQ.

***Eana incanana* (Steph.) (Lep.: Tortricidae) in Cheshire**

On the 3 July 1999 Adrian Wander and myself set off on a nothing trip to Snowdonia. It was not until almost a year later I discovered that the most interesting moth of that weekend was not from Wales but from the back garden of Adrian's house in Weaverham, Cheshire (VC58). Before embarking on the journey into the Welsh mountains I took what I believed was a rather pale looking *Cnephasia stephansiana* showing slightly stronger cross lines. I finally got round to dissecting it this summer and found it to be a male *Eana incanana*. Through correspondence with Steve Hind, the Cheshire microlepidoptera recorder, I discovered it to be only the second modern record, the first being in 1950 from Cotterill Clough near Wilmslow. Usually associated with bluebell woods as far north as Lancashire and Yorkshire, apparently becoming scarcer, this was taken in a suburban back garden at the eastern end of Weaverham with mainly blackthorn hedges, the nearest broad-leaved woodland being Owley Road Wood, quite small and approximately 500 metres away. An examination of records for four of Cheshire's neighbouring vice counties reveals that in Lancashire, *E. incanana* is rare in the south (VC59), with the last known record being pre-1940 whilst in the north (VC60), it is recorded annually in the Silverdale/Gait Barrows area. In Flintshire (VC51), it is only known from Rhuddlan in the 1950s and in Denbighshire (VC50) it is recorded from Bettisfield in the same decade. My thanks to Steve Hind, Phil Palmer and Bryan Formstone, microlepidoptera recorders for Cheshire, Lancashire and Flintshire/Denbighshire, respectively, for information on the moth in their areas.— JON CLIFTON, Kestrel Cottage, Station Road, Hindolveston, Norfolk NR20 5DE.

Postponed emergence in the Orange-tip butterfly *Anthocharis cardamines* (L.) – a footnote

In this journal (*Ent. Rec.* **111**: 241) I recorded the gradual emergence, over a period of three years, of adults from a batch of the pupae of this species which were bred in 1996. At the end of 1998, one living pupa remained. In April 2000, this pupa "coloured up" and the wings of what was clearly a male specimen were plainly visible through the pupa's wing cases. This "colouring up" usually occurs on the day prior to emergence. Unfortunately the adult failed to emerge, and when I opened the pupa three days later it was found to be dead. This insect had spent some three and a half years in the pupal state and was clearly alive at the time the wing colours became visible through the pupal case. Whether this pupa could have survived in the wild is, frankly, debatable, but the gradual emergence of the original batch of 31 pupae over three years, surely gives credence to the theory that if weather conditions at the usual time of emergence are unsuitable, then final eclosion of the adult insect can be postponed, if necessary over several years.— HARRY T. EALES, 11 Ennerdale Terrace, Low Westwood, Co. Durham NE17 7PN.

An albino Gatekeeper *Pyronia tithonus britanniae* Verity ab. *albinotica* Goodson (Lep.: Nymphalidae)

The butterfly recorder soon becomes familiar with the species in their local area, and it is unusual to see a butterfly that does not fit into any of the known categories. While recording in grid square SP 4839 in Northamptonshire on 6 August 2000, I was therefore surprised to see in the distance a medium-sized, pale orange-brown butterfly that I could not identify. Its colouring somewhat resembled a Small Heath, but it was too big and in the wrong habitat. Fortunately, it settled by the side of the track and allowed an examination and a few photographs before flying over the hedge. It proved to be an albino Gatekeeper (Plate E) where the normal deep brown colouring was replaced by pinkish-buff, while the orange portions retained their usual colour, and



Plate E. Albino Gatekeeper *Pyronia tithonus britanniae* Verity ab. *albinotica* Goodson. Northamptonshire. 6.viii.2000. Photograph © Chris Tyler-Smith

appears to be an example of ab. *albinotica* Goodson. This was one out of 3,315 Gatekeepers recorded between 1997 and 2000. Such aberrations are rare; previously, ab. *albinotica* has only been reported on a few occasions: Sussex in 1897 (South, 1960 ed., *The Butterflies of the British Isles*); Salisbury in 1933 (Frohawke, 1938, *Varieties of British Butterflies*, plate 8 fig 1); and North Devon in 1938 (Howarth, 1973, *South's British Butterflies*, plate 41 no 9). It is therefore a pleasure to obtain a photograph of such a butterfly in its wild state.— CHRIS TYLER-SMITH, Northview, North Lane, Weston-on-the-Green, Bicester, Oxon OX25 3RG.

***Gelechia senticetella* Stdgr. (Lep.: Gelechiidae) in Hertfordshire**

During one of my regular visits south to my parental home in Datchworth, Hertfordshire, I took the opportunity, as one does, to run a moth trap overnight, on the 31 July 2000. The weather on this occasion proved ideal for light trapping and a 125W mercury vapour bulb mounted on a tripod over a sheet was run for most of the night.

Towards midnight, a small well-marked gelechiid moth was found on the sheet. Its greyish-fawn coloured forewing streaked, in portions, with dark blackish-fuscous was quite distinctive, but different from any gelechiid I had previously encountered. It was duly set and subsequent checks revealed it to be *Gelechia senticetella*. Discussion with Colin Plant, the Hertfordshire moth recorder, confirmed that this was new record for Hertfordshire for this relatively recent addition to the British list. The rural garden where the trap was operated contained a few well-established conifers and planted juniper occurred nearby in adjacent gardens.

The tally for the night came to over 140 species (roughly half and half micros and macros), but this included a few larval leaf-mining micro records made before darkness. Other notable moths for the evening included *Nemapogon clematella* (Fabr.), *Caloptilia alchimiella* (Scop.), *Cnephasia pasiuana* (Hubn.), *Zeiraphera griseana* (Hubn.) and *Grapholita* (*Cydia*) *funebrana* (Treits.) all of which have not been recorded in the county for some time.

I would like to thank Colin Plant for supplying information relating to the status of the moths mentioned above.—STEPHEN PALMER, 137 Lightfoot Lane, Fulwood, Preston, Lancs PR4 0AH.

***Meganola albula* (D.&S.) (Lep.: Nolidae) recurs in North Hampshire**

On 23 July 1997 a specimen of *Meganola albula* flew to my moth trap here, apparently the first record for VC12 since 1967, when the species was seen at St Mary Bourne and Micheldever. To find a north-eastern occurrence, however, one has to go back to 1954 at Whitehill, which is quite close to Selborne. These long gaps in time are surprising since the foodplant, *Rubus caesius* (Dewberry), grows in this area (*teste* Stephen Povey, pers. comm.). After photographing the moth I released it but there has been no further recurrence. Over long periods without any records one can perhaps consider that absence of evidence is not evidence of absence. Another possibility would be migration.—ALASDAIR ASTON, Wake's Cottage, Selborne, Hampshire GU34 3JH.

Lepidoptera new to the Isle of Wight (VC 10) in 2000

Peter Cramp recorded the first Island record of *Duponchelia fovealis* (Zell.) indoors at his home in Ventor on 23 June. I believe that this is the ninth British record and it seems likely that it arrived on imported flowers brought into the house.

I took an example of *Caloptilia rufipennella* (Hb.) at light at Freshwater on 9 September which is a new Vice County record.

Finally Dr David Biggs discovered many tenanted mines of *Phyllonorycter platanoidea* (Joan.) on Norway Maple at Bouldnor Forest on 14 October.—S. A. KNILL-JONES, Roundstone, 2 School Green Road, Freshwater, Isle of Wight PO40 9AL.

BOOK REVIEWS

Provisional atlas of British hoverflies (Diptera, Syrphidae) by Stuart G. Ball and Roger K. A. Morris. 168 pp., 272 distribution maps. A4, paperback, ISBN 1 870393 54 6. Biological Records Centre, 2000. £8 inclusive of UK postage and packaging, from Biological Records Centre, CEH Monks Wood, Abbots Ripton, Huntingdon, PE28 2LS.

After Lepidoptera, the hoverflies are beyond doubt the most popular of British insects and these long-awaited distribution maps of British species are likely to prove as popular with British entomologists as Alan Stubbs' book *British Hoverflies*. The 374,784 records received up to June 1999 are combined into 136 pages, each bearing the distribution map and discussion for two species. This gives us a total of 272 species, although the brief introduction would have us believe there are 266 (undefined taxa such as *Sphaerophoria* form A and *Sphaerophoria* species B make up the apparent discrepancy). The map showing recording coverage is impressive (though there are some embarrassing white spaces dotted about England and Wales), but the coincidence map on the following page, showing the number of species recorded in each ten-kilometre square, is more revealing. Roger Morris' home county is clearly defined! Are there really no hoverflies in North Aberdeenshire and East Sutherland? Can it really be that no dipterist has ever been to the Isle of Lewis?

For almost all species, records are mapped to ten-kilometre squares, using the three date bands of pre-1960 and undated, 1960 to 1979 and 1980 onwards (in reality to mid-1999). The result is a tremendously important set of maps that are not only of great interest, but also will be of immense use to those involved in using hoverflies in environmental assessment and other applications. Three species are mapped to

50 kilometre squares only. This is probably justified in the case of *Blera fallax*. This rare fly is now confined as a breeding species to a very few stumps, and is a target for collectors. Since it is more easily obtained as a larva than as an adult, and since extracting larvae destroys the stumps, it would seem a sensible move to not tell all and sundry exactly where it is to be found (one hopes, most sincerely, that those who know will act responsibly!). I am less convinced, however, that this mapping scale is necessary for *Hammerschmidtia ferruginea* or *Callicera spinolae*. Equally rare species such as *Doros profuges* or *Sphaerophoria loewi* are not afforded such anonymity. On the other hand, anyone who desires to know the precise locality would probably contribute rather more by seeking their quarry in new areas!

There are some points of annoyance. The long delay between submission and publication means that some important published works are not taken into account. Thus in the map for *Doros profuges*, four erroneous old records are mapped and two modern ones are omitted, including that for the Isle of Mull which was published in 1992 (*Entomologists' Gazette* **43**: 72). All records of *Platycheirus scambus* from the south-east and of *Chrysotoxum cautum* from the north-west have been omitted, as these were judged likely to be incorrect in many cases. This is disappointing. After the finished maps were sent for publication by the authors, examination of museum specimens has since revealed that at least some of the north-west records of *C. cautum* are correct. My own records of *P. scambus* from Essex and Hertfordshire are certainly so (I was careful to get other people to verify them), and, furthermore, have appeared in the literature well before the June 1999 cut-off date for records (*Entomologist's Monthly Magazine* **130**: 253-254). It might have been helpful to include a word or two stating that this has been done; as it stands the work gives a clear but erroneous message that *P. scambus* does not occur in the south-east. Although this is a *provisional* atlas, and all records should therefore be regarded as such, people will inevitably take maps in isolation as being definitive. These maps may well have the effect of preventing people sending in further records of *scambus* from the south-east, or of *cautum* from the north-west, on the grounds that they have probably made a mistake. Or it may cause those who do read the literature to assume that the authors have missed other published records. Certainly it makes one wonder whether it really was worth going to all the effort of ensuring that the unusual records were properly validated and reported.

No taxonomic statements are made – species are presented strictly in alphabetical order. Up-to-date names have been used for the species, although *Platycheirus splendidus*, a species recently described by Graham Rotheray, is misspelled as *P. splendens*, both in the introduction to the maps on page 13 and on the distribution map itself.

The introductory pages include an interesting summary of the status of hoverflies in Britain. This lists three species recorded in Ireland but not in Britain (it is a pity that Ireland is not included in the maps). One species is now believed to be extinct in Britain; a further six are in serious decline. A table across two pages summarises the threat status codes applied to the less common species by a variety of authors. Sadly, the authors pass no opinion of their own here; this is surely a missed opportunity?

Nevertheless, this is a contribution of major importance to the entomological literature. All hoverfly enthusiasts will want to have it as will anyone with a passing interest in the group. In view of the acknowledged value of hoverflies as indicators of saproxylic habitats and of wetlands, and their potential as indicators of other habitats, the book will be useful to land managers, environmental assessors and ecologists everywhere.

COLIN W. PLANT

Variation in British Butterflies by **A. S. Harmer**. Illustrated by **A. D. A. Russwurm**. 294 pp., including 84 full page colour plates of variations in British butterflies. Numerous colour plates in text. 282 x 200 mm., hardbound. ISBN 0 953 7236 0 7. Paphia Publishing Ltd, 2000. Available from the publishers at Covertside, Sway Road, Lymington, Hampshire SO41 8NN. £55 inclusive of UK postage.

This large, lavishly illustrated volume is divided into three principal sections – a biography of the illustrator, Donald Russwurm, a chapter on genetics and variation and a meaty section of 84 colour plates showing aberrations of British butterflies.

The biography makes interesting reading, but it is surely the other two sections that will be of greatest interest to the majority of readers. The genetics section opens with a discussion of the theoretical aspects of genetics and heredity. These were never my strongest subjects as a student, and so I was pleased to discover that this book does not fall into the trap of assuming existing knowledge on the part of the reader. The subject is complex, but this chapter simplifies it nicely, without becoming patronising, taking the reader through step by step, leaving out nothing. Chapter two in this section deals with practical applications of butterfly genetics in the field, giving many examples, and chapter three is entitled “Tips for success”. Section three, the colour plates, splendidly executed by Donald Russwurm, stand not just as an entomological reference, but also as a work of art.

Many readers will likely cut straight to the superb colour plates, but if they do, then they will not gain the full benefit of this magnificent work – they will merely be able to put labels on their specimens and they will learn nothing. If, on the other hand, they take the time to read the genetics and heredity section, they are likely to gain a reasonably comprehensive understanding of the subject and will surely glean something of the significance of particular types of aberration within butterfly populations under study. Indeed, this section will surely also be of interest to students of genetics in general, whether they have an interest in butterfly aberrations or not.

If I have one criticism it is this. Several of the aberrations illustrated are labelled as “ab. nov.” without any indication of a name. Indeed, this fact is mentioned in the Preface, where it is stated that “... whilst some of the most minor forms have been formally described and named, other more outstanding aberrations have not, and so remain as ‘ab. nov. (new aberration)’”. Given that these new aberrations are now illustrated, it surely would not have been too difficult for the author to add a few brief words of description and give them a name?

This work represents the first to be produced by Paphia Publishing. Serious students of butterfly aberrations will want to possess it. If you missed Christmas there is always Easter!

COLIN W. PLANT

Moccas: An English deer park edited by **Paul T. Harding and Tom Wall**. 348 pp., numerous illustrations. A4. paperback, ISBN 1 85716 511 X. English Nature, 2000. £20.

Subtitled “The history, wildlife and management of the first parkland National Nature Reserve”, this is a comprehensive review of knowledge of this most important Herefordshire site. The park, which extends over some 139 hectares, has been noted for its veteran trees for about two hundred years, yet it was not until the 1940s that it was

recognised as being of national importance and not until 1981 that it was finally declared a National Nature Reserve. By now placing on record, in this work, the sum total of present knowledge, ecologists, land managers and others are presented with a valuable case study, which will help to define management policies at sites elsewhere in Britain.

There are seven principal sections to the work, each subdivided to some degree. These main sections are the Introduction, followed by Historical context, Landscape and trees, Flora, Fauna, Estate management and conservation and finally A vision for the future. Of greatest interest to readers of this journal may well be chapter 5.1, entitled "Saproxylic invertebrates and the conservation value of British parklands" and the ensuing chapters concerned specifically with Coleoptera and Diptera. However, it is well worth the effort of reading the remainder of the book in order to gain a full understanding of the diverse ecology of the park and the various problems associated with maintaining this.

Interestingly, whilst Moccas Park is evidently extremely well-worked for beetles, the list of moths is surely far from complete? There is an opportunity there for somebody!

COLIN W. PLANT

De danske graeshopper by **Ole Fogh Nielsen**. 192 pp plus Compact Disk affixed inside rear cover. Numerous colour plates, colour distribution maps and monochrome text figures. 172 x 248 mm, hardbound, ISBN 87-88757-50-1. Danmarks Dyreliv, bind 9 (ISSN 0109-7164), Apollo Books, 2000. DKK 300. Available from Apollo at Kirkeby Sand 19, DK-5771 Stenstrup, Denmark. (Apollo Books will accept payment made by cheque drawn on a UK bank account. At January 2001 exchange rates, the price inclusive of postage and packing is £30.)

It never ceases to amaze me how Apollo Books manage to churn out such a steady stream of entomological books, all of the highest possible quality, whilst over here in Britain it seems that books of that calibre manage only to appear at the rate of once every five years or more. This latest offering from Apollo is no exception to the expected norm – a sheer pleasure to have on the shelf or, better still, to hold in the hand. The only drawback is that the text in this work is in Danish – a language that few outside Denmark will understand, although this is, after all, one in a series of works concerned with the Danish fauna.

A total of 32 Orthoptera are included, ten in family Tettigoniidae, one in Rhaphidophoridae, two in Gryllidae, one in Gryllotalpidae, three in Tetrigidae and fifteen in Acrididae. Twenty-four of these are also members of the British Isles fauna. The eight non-British species (species that are not mentioned in Marshall & Haes, 1988. *Grasshoppers and allied insects of Great Britain and Ireland*. Harley Books) are *Tettigonia cantans*, *Tachycines asynamorous*, *Tetrix bipunctata*, *Bryodema tuberculata*, *Chorthippus mollis*, *C. biguttulus*, *C. apricarius* and *C. dorsatus*. At least two of these are possible contenders for British status in the future if climate changes continue.

All of the species, as well as some fossil species, are illustrated in colour and it is here that the value of the book is most apparent to those of us who do not read Danish. These are amongst the most superb colour photographs of insects that I have seen, whilst the habitat photographs that accompany each species are also of exceptionally high quality. With one exception, the species photographs feature live insects in natural habitat; quite frankly, they render the key to species almost redundant!

The CD, which accompanies the book, contains 49 tracks. These include field recordings of natural stridulations as well as ultrasonic recordings of several species (that's with a "bat detector" to you and me). Fascinating, and extremely helpful (though I will leave you to work out for yourselves exactly what you think track 16 sounds like!). Both author and publisher are to be congratulated.

COLIN W. PLANT

Insectorvm sive Minimorum Animalium Theatrvm by George Thomson. 66 pp., 210 x 297 mm., hardbound. Privately published by the author during 2000, as a limited edition of 500 copies. £65 plus £2.50 UK postage from 2 Ravenhill, Lochmaben, Lockerbie DG11 1QZ, Scotland. (An order form was included with the last issue of this journal).

The *Theatrum*, originally penned by Thomas Moufet (1553-1604), was the earliest book on insects to be produced in Britain and, as such, is a piece of history as well as being of considerable entomological interest. Chapter 14 covered the butterflies and moths and it is with this part that George Thomson's book is concerned. That chapter is reproduced as a facsimile of the original Latin version, and this is preceded with a reproduction of the 1658 English translation by John Rowland.

Moufet described many species of butterfly and moth in the original work, but gave names to none of them. Indeed, in spite of the many scholarly works written about the *Theatrum*, a comprehensive identification of the species concerned has never been done until now. Thomson includes the identifications alongside the English text of Rowland.

The introduction to the modern work also provides a wealth of interesting information on the origins and eventual publication of the *Theatrum*. Although Moufet undoubtedly penned the work, which was eventually published after his death in 1634, it is generally accepted that he drew heavily, if not entirely, on the work of others; these contributors are given their due credit in this modern work.

The facsimile and its translation form the bulk of the work and to review these would be both difficult and pointless, particularly since Thomson's work is almost a review in its own right. However, the *Theatrum* is a book that I am personally rather fond of, not least because during my fifteen years in the museum service from 1979 to 1994, I had charge of an original Latin copy. Unlike Dr Thomson, however, I have never been lucky enough to possess one in my private library and, in such a circumstance, Thomson's reproduction and interpretation is well worth having.

COLIN W. PLANT

Irish indoor insects: A popular guide by James P. O'Connor and Patrick Ashe, illustrated by Sean Milne. 180 pp., 170 x 240 mm, paperback. ISBN 1 86059 095 0. Town & County House, 2000. Available from the Natural History Museum, Merrion Street, Dublin 2, Ireland.

The fact that this book covers Irish insects should not in any way put off the British reader. This fascinating and illuminating tome is written for a popular audience, rather than for the specialist entomologist. Nevertheless, it is sure to find a place in the libraries of the readers of this journal. The enthusiasm and sense of enjoyment that the authors have for insects and other invertebrates comes across in the scholarly, yet clear, concise and simple text, which is superbly illustrated by the pen of the artist. The beasts themselves are treated in six chapters, entitled The smaller insect orders, True bugs, Beetles, Flies, Butterflies and moths, and Bees, wasps and ants. A preliminary chapter deals with identification and provides a well-illustrated guide enabling the layman to decide to which group a particular insect belongs. The list of included species is not

exhaustive, but is a compilation based on the authors' considerable experience and on data contained in the books and papers listed in the references.

Of greatest interest to seasoned entomologists will surely be the last two chapters and the three Appendices. The two chapters cover Control of indoor pests and Insects and human health. I am sure that most entomologists have, at some stage, once word has got around that they are "know about" insects, been asked to provide a definitive solution to a whole range of insect related problems – both real and perceived. These chapters contain most of the answers that we might feel qualified to give before referring the matter to a professional pest control officer or medic. The paragraphs about the condition "delusory parasitosis" are especially interesting to me, having already encountered two cases during my years in the museum service. The three appendices are entitled Design and construction (with some useful basic principals aimed at architects), Product liability claims and Professional identification of insects (including guidance on packing up specimens for posting – something many experienced entomologists might do well to read, if my own mail bag is anything to go by).

Having spent rather more years than I care to count holding various offices and sitting on a variety of committees, I have developed the theory that, in most cases, three blokes (or women) in the pub afterwards can usually achieve far more, in a fraction of the time, than could ever be achieved in a stuffy committee room (usually with those nasty plastic chairs that induce unconscious fidgeting!). How refreshing, therefore, to read in the acknowledgements section of this book that it was largely written in two separate Dublin pubs, fully aided and abetted by copious quantities of the black stuff! Mind you, if they had stuck to one pub only, perhaps the subtitle on the cover would not have been different from that on the title page!

COLIN W. PLANT

Checklist of Lepidoptera recorded from the British Isles. Second edition (revised) by J. D. Bradley. 124 pp., A4, paperback. ISBN 0 9532508 2 2. Privately published. Available from The Glen, Frogham, Fordingbridge, Hampshire, SP6 2HS. £12 plus £2 UK postage and packaging.

John Bradley's new checklist of British Isles Lepidoptera, published in 1998 was reviewed in this journal in volume **110**, pages 256-258. Subsequently, that work was produced at a smaller page size during 2000, along the lines of the original 1979 "Log Book" (see this journal, volume **112**, page 188). Now, the Checklist has been revised, to take account of a few errors in the 1998 work, and the result is very pleasing. The two works are presented in identical manner, though the revised version contains much more information on each species and, judging from the expanded list of literature references used, is more thoroughly researched. In particular, larval associations seem to have been added for all species where the information is known (the 1998 list was rather more selective). Species listed in the *Red Data Book* are indicated and other less common species are appropriately annotated. Debates will continue, I am sure, on the appropriateness or otherwise of some names, but there is little that can be done about that other than to summarise the present state of knowledge and understanding. This is precisely what John has done. This booklet is an important update to the 1998 work and is essential reference anyone working on, or just simply collecting, British Lepidoptera.

COLIN W. PLANT

Continued from back cover

<i>Eana incanana</i> (Steph.) (Lep.: Tortricidae) in Cheshire. <i>Jon Clifton</i>	40
Postponed emergence in the Orange-tip butterfly <i>Anthocharis cardamines</i> (L.) – a footnote. <i>Harry T. Eales</i>	40
An albino Gatekeeper <i>Pyronia tithonus britanniae</i> Verity ab. <i>albinotica</i> Goodson (Lep.: Nymphalidae). <i>Chris Tyler-Smith</i>	41
<i>Gelechia senticetella</i> Stdgr. (Lep.: Gelechiidae) in Hertfordshire. <i>Stephen Palmer</i> ...	42
<i>Meganola albula</i> (D.&S.) (Lep.: Nolidae) recurs in North Hampshire. <i>Alasdair Aston</i>	42
Lepidoptera new to the Isle of Wight (VC10) in 2000. <i>S. A. Knill-Jones</i>	43

Book Reviews

<i>Provisional atlas of British hoverflies (Diptera, Syrphidae)</i> by Stuart G. Ball and Roger K. A. Morris	43-44
<i>Variation in British Butterflies</i> by A. S. Harmer. Illustrated by A. D. A. Russwurm ..	45
<i>Moccas: An English deer park</i> edited by Paul T. Harding and Tom Wall	45-46
<i>De danske graeshopper</i> by Ole Fogh Nielsen	46-47
<i>Insectorvm sive Minimorum Animalium Theatrvm</i> by George Thomson	47-48
<i>Irish indoor insects: A popular guide</i> by James P. O'Connor and Patrick Ashe, illustrated by Sean Milne	47-48
<i>Checklist of Lepidoptera recorded from the British Isles</i> . Second edition (revised) by J. D. Bradley	48

Subscriber notice

Publications of the Malloch Society now available	23
---------------------------------------------------------	----

Entomologist's Monthly Magazine

Caters for articles on all orders of insects and terrestrial arthropods, specialising in the British fauna and groups other than Lepidoptera. Published March, July and November (4 months per issue)

Annual subscription UK and Europe £33 (\$72), USA and Rest of World £36 (\$79).

Entomologist's Gazette

An illustrated quarterly, devoted to Palaearctic entomology. It contains articles and notes on the biology, ecology, distribution, taxonomy and systematics of all orders of insects, with a bias towards Lepidoptera. Caters for both the professional and amateur entomologist. Published January, April, July and October.

Annual subscription UK and Europe £29 (\$64), USA and Rest of World £33 (\$72).

The Moths and Butterflies of Cornwall and the Isles of Scilly

by F.H.N. Smith (County Species Recorder)

The systematic list gives details of localities, dates and provenance for over 1500 species, also noting the status currently assigned by English Nature to the nationally uncommon or endangered species which occur in Cornwall. Listed are species gained since the Victoria County History, 1906, and those not since recorded. 480 pages including 152 colour illustrations. **Hardback £44 + P&P £3.**

Handbook of Palaearctic Macrolepidoptera

VOLUME 1 Sesiidae – Clearwing Moths

by K. Špatenka, O. Gorbunov, Z. Laštůvka, I. Toševski and Y. Arita

Synonymic lists, descriptions section, full data on male and female genitalia, bionomics and habitat and distribution maps. Most species illustrated by superb watercolour paintings by Starý, Holzinger and Gregor. Published October 1999. **Price £120 + P&P: UK £5, Overseas £10.**

Payments by cheque or Giro Transfer to account no. 467 6912.

For further details
please write to:

GEM PUBLISHING COMPANY
Brightwood, Brightwell,
Wallingford, Oxon OX10 0QD



THE ENTOMOLOGIST'S RECORD

AND JOURNAL OF VARIATION

Contents

<i>Scraptia fuscula</i> (Müll.) (Col.: Scraptiidae) in Gloucs.; with notes on this and <i>S. testacea</i> Allen. A. A. Allen	1-2
Butterflies in Hungary, 9-20 July 1999. Andrew Wakeham-Dawson, Ted Benton and Bernard Watts	3-11
The occurrence of the Juniper Shieldbug <i>Elasmotethus tristriatus</i> (Fabr.) (Het.: Acanthosomatidae), in Northumberland and Co. Durham. Harry T. Eales	13-16
An annotated list of type specimens of Lepidoptera deposited in the collection of the Institute of Zoology, Sofia I. Butterflies (Lep.: Papilionoidea). Stanislav Abadjiev ..	19-23
A response to A. A. Allen's list of notable Cornish Coleoptera. R. Colin Welch	27-28

Notes

A late occurrence of the Mother of Pearl moth <i>Pleuroptya ruralis</i> (Scop.) (Lep.: Pyralidae). Tony Steel	2
White Colon <i>Sideridis albicolon</i> (Hb.) (Lep.: Noctuidae): New to Denbighshire (VC50). Adrian Wander	12
<i>Acleris kochiella</i> (Goeze) (Lep.: Tortricidae) new to Norfolk. Jon Clifton	12
A note on <i>Oedemera lurida</i> (Marsham) (Col.: Oedemeridae) in North London (Middlesex). K. G. V. Smith	16
Further records of Hoary Footman <i>Eilema caniola</i> (Hb.) (Lep.: Arctiidae) in North Wales. David C. G. Brown	17
An exceptionally early Common Quaker <i>Orthosia cerasi</i> (Fabr.) (Lep.: Noctuidae) from Devon. Robert Bogue	17
A December record of the Common Quaker <i>Orthosia cerasi</i> (Fabr.) (Lep.: Noctuidae) in West Yorkshire. Paul Talbot	17-18
Clouded-bordered Brindle <i>Apamea crenata</i> (Hufn.) (Lep.: Noctuidae). Some unusual dates in East Lancashire. S. M. Palmer	18
Hazards of butterfly collecting – round-eye taxi driver, Korea, 1978. Torben B. Larsen	24-25
<i>Arhopalus rusticus</i> (L.) (Col.: Cerambycidae) in Somerset. Brian E. Slade	25
<i>Sitaris muralis</i> (Forst.) (Col.: Meloidae): first modern record for Kent and the London area. A. A. Allen	25-26
<i>Lymexylon navale</i> L. (Col.: Lymexylidae) in East Suffolk. David R. Nash	26
Fifth update of early emergences of moths at Selborne, Hampshire. Alasdair Aston ..	29-30
Little-known entomological literature – 6. Brian O. C. Gardiner	31-34
Is the Orange Ladybird <i>Halyzia sedecimguttata</i> (L.) (Col.: Coccinellidae) a migrant? Neville L. Birkett	34-35
On the binding of journals and their supplements	35-37
Dusky Sallow <i>Eremobia ochroleuca</i> (D. & S.) (Lep.: Noctuidae) in Lancashire and some notes on other species. S. M. Palmer	37-38
<i>Atomaria scutellaris</i> Motschulsky (Col.: Cryptophagidae) in East Suffolk. David R. Nash	38
<i>Xanthandrus comtus</i> (Diptera, Syrphidae): new to Shetland. M. G. Pennington	38-39
Two, possibly new, aberrations of British butterflies. K. F. Williams	39
<i>Evergestis extimalis</i> (Scop.) (Lep.: Pyralidae) in Somerset. Brian E. Slade	39

Continued on inside back cover

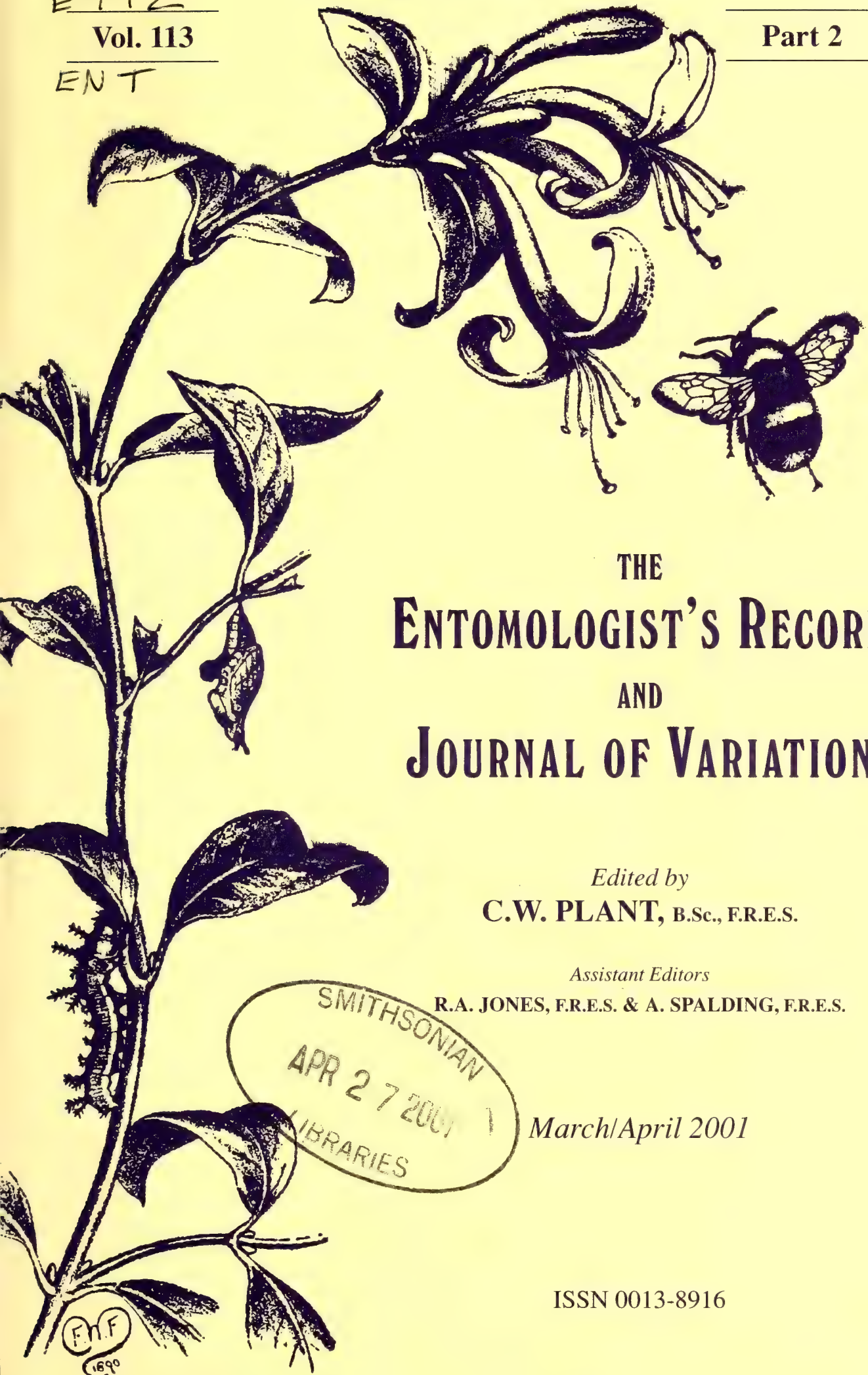
QL
461
E992

PUBLISHED BI-MONTHLY

Vol. 113

Part 2

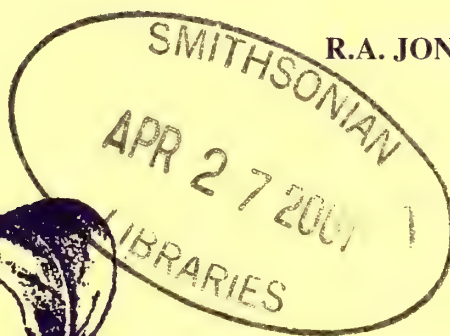
ENT



THE
ENTOMOLOGIST'S RECORD
AND
JOURNAL OF VARIATION

Edited by
C.W. PLANT, B.Sc., F.R.E.S.

Assistant Editors
R.A. JONES, F.R.E.S. & A. SPALDING, F.R.E.S.



March/April 2001

ISSN 0013-8916

ENT
1690

THE ENTOMOLOGIST'S RECORD

AND JOURNAL OF VARIATION

World List abbreviation: *Entomologist's Rec. J. Var.*

Editor

C.W. PLANT, B.Sc., F.R.E.S.

14 West Road, Bishops Stortford, Hertfordshire CM23 3QP.

Telephone: 01279 507697 E-mail: Colinwplant@compuserve.com

Assistant Editors

R.A. JONES, B.Sc., F.R.E.S., F.L.S. & A. SPALDING, M.A., F.R.E.S.

Editorial Panel

A.A. Allen, B.Sc., A.R.C.S.

N. L. Birkett, J.P., M.A., M.B., F.R.E.S.

J.D. Bradley, Ph.D., F.R.E.S.

J.M. Chalmers-Hunt, F.R.E.S.

P.J. Chandler, B.Sc., F.R.E.S.

C.A. Collingwood, B.Sc., F.R.E.S.

C.J. Luckens, M.B., Ch.B., D.R.C.O.G.

B. Skinner

P.A. Sokoloff, M.Sc., C.Biol., M.I.Biol., F.R.E.S.

Registrar

R.F. McCormick, F.R.E.S. 36 Paradise Road, Teignmouth, Devon TQ14 8NR

Hon. Treasurer

C.C. Penney, F.R.E.S. 109 Waveney Drive,
Springfield, Chelmsford, Essex CM1 7QA

Photograph Editor

David Wilson, 9 Lode Lane, Wicken,
Cambridgeshire CB7 5XP

WHERE TO WRITE

Papers, notes, books for review, notices, adverts etc – *Editor*

Changes of address – *Registrar*

New subscriptions, renewals, donations, non-arrival of Journal – *Treasurer*

Back issues – Paul Sokoloff, 4 Steep Close, Green Street Green, Orpington, Kent BR6 6DS

ANNUAL SUBSCRIPTION RATES

Individual subscriber £28

Institutional subscriber £40

Readers are respectfully advised that the publication of material in this journal does not imply that the views and opinions expressed therein are shared by the Editor, the Editorial Panel or any party other than the named author or authors.

Guidelines for contributors

We welcome articles for publication from all sources. It is not necessary for authors to be subscribers. Please follow the format of articles in this issue of the journal. Full instructions may be obtained by post from the editor or via our web site at:

<http://members.netscapeonline.co.uk/colinwplant/entrechome.html>

We are now able to include colour or black and white photographs (or slides), where these effectively illustrate a point in your article.

We publish notes and peer-reviewed papers on **British Isles** insects, primarily Lepidoptera and Coleoptera, but contributions on any other group may also be sent. We also include articles on European species in some situations, where we believe this to affect the British Isles fauna or to be of interest to British Isles entomologists. Non-European articles may be included, rarely, and entirely at editorial discretion.

All papers are subject to peer-review and are almost always returned to the author for corrections to be made. Authors should be prepared to make changes. Notes and communications are reviewed by the editorial panel and are not normally returned to authors for checking.

You do not need to have a computer to contribute; we are able to accept typed papers and notes, or even hand-written notes, if necessary. However, it helps enormously to receive manuscripts via E-mail or on floppy disk, in a PC-compatible format that can be read by Microsoft Word 2000. This process also saves us £3 per page in typesetting costs and makes editing much easier.

Drawings, graphs, photographs etc may be sent in an electronic form that has been previously agreed with us. In all other cases, we need the originals (which will be returned).

Authors of papers may receive 25 free reprints and can pay for more. All reprints must be ordered on a form provided with the proofs. Reprints of notes are not provided unless specifically requested at the time of submission.

The editor is always happy to discuss contributions with authors and will be especially pleased to offer help to anyone writing an article for the first time.

THE EUROPEAN STATUS OF THE UK BIODIVERSITY ACTION PLAN MOTHS

M. S. PARSONS

Butterfly Conservation, UK Office, Manor Yard, East Lulworth, Wareham, Dorset BH20 5QP

E-mail: mparsons@butterfly-conservation.org

Background

Fifty-three species of moth are treated as priorities for conservation within the UK Biodiversity Action Plan (BAP) (UK Biodiversity Group, 1999a & b). A brief history and an explanation of the rationale behind the UK BAP is given in Parsons, Green & Waring (2000). Butterfly Conservation (BC) is the Lead Partner for 52 of the 53 species, three of these jointly with English Nature (EN), the National Trust and the RSPB. Scottish Natural Heritage is the Lead Partner for the remaining species. In 1999, BC formed the Action for Threatened Moths Project to oversee the implementation of the moth Action Plans.

With so many species and such a wide range of actions stipulated in the Plans, we have tried to select priorities by identifying those species where limited available resources would have maximum impact. This selection took into account the perceived degree of threat, the knowledge of habitat management, the achievability of actions and whether or not there was an existing project, for example as part of ENs Species Recovery Programme. However, no account was taken of the species' distribution or degree of threat within Europe and it was felt that some effort should be made to determine whether any of the UK BAP species should be identified as conservation priorities at an international level.

In a major achievement, Karsholt & Razowski (1996) published a checklist providing species occurrence on a country by country basis throughout Europe. However, it was beyond the remit of that publication to give an indication of status, indeed it is stated in the Introduction that a "national species record may be based on a single specimen". Information on status and trend of individual species over Europe is, where known, at best widely scattered. The current review was therefore started to fill this gap and provide an initial assessment of the European status of the UK BAP moths.

A questionnaire

In 1999, a Red Data Book of European Butterflies was published (Van Swaay & Warren, 1999). This report was based on the distribution and trend data collected for each country through a network of over 50 expert national compilers who each completed a questionnaire. The resulting database allowed an assessment of each species' threat and conservation status. A provisional report was sent to compilers and other experts for checking and revision.

It is probably reasonable to state that the knowledge of the status and distribution of moths in individual countries is less well known than the butterflies in every case. Through the membership list of the *Societas Europaea Lepidopterologica*, personal contacts, recommendations and the advice of Martin Honey (Natural History Museum), over 20 specialists were identified throughout Europe as experts on their countries moth fauna. These specialists covered a wide geographic coverage, although there was a bias towards western Europe and Scandinavia. Using the questionnaire model (after Van Swaay & Warren, 1999), each of the 20 experts were contacted and asked to complete a questionnaire to the best of their ability.

For the purposes of this exercise, the questionnaire considered taxa at the species level only, i.e. the British subspecies were not considered. The questionnaire asked about the following:

- If native; if each of the 53 species was native to their country.
- Abundance; data on abundance was requested. Abundance was regarded as the percentage of grid squares covered reported from 1980 onwards (where this data were available), if the information was not available then best judgement was to be used.
- Trend; trend was described as the change in distribution from 1980 onwards, specifying whether a species was extinct or distributions were decreasing, more or less stable, increasing or were known to fluctuate. Information was requested on the scale of the changes in broad classes.
- Sites; data on the number of sites within each country was sought.
- Information on data quality was requested.
- Habitat type, this based on the CORINE listing which was supplied with the questionnaire.
- Finally, there were questions about available literature relating to distribution maps and Red Data Books or Red Lists and whether or not a European Red Data Book (RDB) for moths should be produced.

Limitations of the data

The task asked of the contributors was substantial. Many of the contributors are already very busy people and, understandably, not all were able to complete the questionnaire as completely as would have been liked. Also data quality and availability varies from country to country and from moth family to family. Consequently, there are problems of interpretation and it proved difficult to compare the results other than at a superficial level. Moreover, returned questionnaires were received from 14 countries (including the UK), which may not represent a sufficient sample from which to draw any firm conclusions. With these limitations in mind the conclusions drawn from this study are considered to be tentative.

Some species are clearly under-recorded or over-looked. For example, the Fiery Clearwing *Pyropteron chrysidiformis* was first reported in the Baden-Württemberg region of Germany in 1971 and is now known from 15 grid squares (A. Steiner pers comm.). Only 12 to 15 examples of the Dingy Mocha *Cyclophora pendularia* have been found in Norway, although it is thought that the species is probably resident and that the precise habitat has not been found (L. Aarvik pers comm.). The degree of under-recording will probably vary across each species' distribution and from species to species.

Preliminary results

Table 1 shows the number of sites reported for each species in the country indicated and Table 2 shows the trend for each species in those countries.

Based on the data, several of the UK BAP species appear to be restricted or confined to a small number of sites in several or many of the countries within their range. Examples of this include the Silky Wave *Idaea dilutaria* which is recorded from a single site in each of Sweden and Belgium, and the Belted Beauty *Lycia zonaria* which is recorded from three sites in Sweden, one or possibly two in Ireland and two in Belgium. Both these species are reported from a number of other countries.

Perhaps more significantly in a European context, two species have been recorded from a very few sites in a very few countries. These are the Marsh Mallow *Hydraecia osseola*, which apart from England has been reported in a few sites from just Spain and Italy, and the Reddish Buff *Acosmetia caliginosa* which was reported from Spain, Italy and the Baden-Württemberg region of Germany. This latter species became extinct in Baden-Württemberg between the 1920s and 1950s due to habitat destruction (A. Steiner pers comm.). Of concern also are those species that are now reported to be extinct in other countries within their range, e.g. Essex Emerald *Antonechloris smaragdaria*, Bright Wave *Idaea ochrata* and Chalk Carpet *Scotopteryx bipunctaria* in Belgium and Orange Upperwing *Jodia croceago* in the Netherlands, Belgium and the Baden-Württemberg region of Germany.

There appears to be no clear pattern in the trends reported for many species, although this may due to a lack of accurate data. Some species are thought to be declining in some countries but remaining stable or increasing in others, e.g. Toadflax Brocade *Calophasia lunula* and Clay Fan-foot *Paracolax tristalis*. There are a number of species where a general decline is reported: Netted Mountain Moth *Macaria carbonaria*; Narrow-bordered Bee Hawk-moth *Hemaris tityus*; White Spot *Hadena albimacula* (the UK being the exception, this being because of targeted survey effort); Marsh Moth *Athetis pallustris*; Brighton Wainscot *Oria musculosa*; Orange Upperwing *J. croceago*; Heart Moth *Dicycla oo*; Scarce Blackneck *Lygephila cracca*; and Four-spotted *Tyta luctuosa*.

For several other species the trend is not so clear but the suggestion is also one of decline: Small Lappet *Phyllodesma ilicifolia*; Essex Emerald *A. smaragdaria*; Belted Beauty *L. zonaria*; Straw Belle, *Aspitates gilvaria*; Speckled Footman *Coscinia cribraria*; and Square-spotted Clay *Xestia rhomboidaria*. Curiously, the dramatic decline of the Bordered Gothic *Heliophobus reticulata* and Pale Shining Brown *Polia bombycina* in this country does not seem to be reflected elsewhere in Europe. The results for the Buttoned Snout *Hypena rostralis* hint at an increase in fortunes in Europe.

Identifying European priorities

Perhaps the highest priority species should be those which occur on few sites over Europe and which are also declining. Based on the data available, such species include: Straw Belle *A. gilvaria*; White Spot *H. albimacula*; Reddish Buff *A. caliginosa*; Marsh Moth *A. pallustris*; White-spotted Pinion *Cosmia diffinis*; Brighton Wainscot *O. musculosa*; Orange Upperwing *J. croceago*; Heart Moth *D. oo*; and possibly also the Silky Wave *I. dilutaria*, Belted Beauty *L. zonaria* and Scarce Blackneck *L. craccae*. Along with the Marsh Mallow *H. osseola*, with its few sites and restricted distribution, it is perhaps these species for which the UK has a significant international responsibility.

The Basil Thyme Case-bearer *Coleophora tricolor* Walsingham was only reported from one other country. However, it is clear that there is taxonomic confusion over the only micro-moth on the UK BAP and that it may be conspecific with *Coleophora ornatipennella* (Hübner) (S. Koster pers comm.), a species not yet reported from the UK but recorded from France and Belgium (Karsholt & Razowski, 1996).

Table 1: Status of the UK BAP moths in Europe – Number of sites reported

Key

- ✓ Present, but number of sites not reported
- * At least some sites vulnerable (excludes inappropriate management). Data not supplied for all countries.
- R Restricted to few sites or area
- ? Status uncertain
- I/A Immigrant or Adventive
- ** Based on an incomplete return

Key to the countries

NR	Norway	IR	Ireland
DK	Denmark	BL	Belgium
SW	Sweden	ES	Spain
SF	Finland	PR	Portugal
EN	Estonia	IT	Italy
DT(B-W)	Germany (Baden-Wurttemberg only)	AU	Austria
NL	The Netherlands	BG	Bulgaria
GB	Great Britain		

	NR	DK	SW	SF	EN	DT (B-W)	NL	GB	IR	BL	ES	PR	IT	AU**	BG
Zygaenidae															
<i>Zygaena loti</i>						20+		<10		10	+		+	20+	20+
<i>Zygaena viciae</i>	R	✓	20+*	✓	✓	20+	1	1		15	7-10		✓	20+	20+*
Sesiidae															
<i>Pyropteron chrysidiformis</i>						>15		3		3	✓	1	✓	✓	20+*
Coleophoridae															
<i>Coleophora tricolor</i>					2			<5							
Lasiocampidae															
<i>Phyllodesma ilicifolia</i>	✓	✓	✓	✓	✓	1 (1979)	?	0		10	✓	4	✓	✓	5*
Geometridae															
<i>Antonechloris smaragdaria</i>	R			✓	✓	20+		0		0	✓		✓	✓	20+
<i>Cyclophora pendularia</i>	?	✓	✓	✓	✓	20+	6	<15*		20	✓	?	✓	✓	6*
<i>Idaea ochrata</i>		✓	1			✓	20	1		0	✓	20+	✓	✓	20+
<i>Idaea dilutaria</i>			1			✓		3		1	✓	0	✓	✓	17*
<i>Scotopteryx bipunctaria</i>						20+	0	20+		0	✓		✓	20+	20+
<i>Eustroma reticulata</i>	✓	✓	✓	✓	✓	✓		<15*		4	?		✓	✓	9*

	NR	DK	SW	SF	EN	DT (B-W)	NL	GB	IR	BL	ES	PR	IT	AU**	BG
<i>Pareulype berberata</i>		1+	2			✓	17	9	0	10	✓		✓	20+	2*
<i>Rheumaptera hastata</i>	✓	✓	✓	✓	✓	✓	6	20+	3	6	?		✓	20+	3*
<i>Hydrelia sylvata</i>	✓	✓	20+	✓	✓	✓	0	20+	?	8	?		✓	✓	
<i>Minoa murinata</i>						✓	4	20+		6	✓	?	✓	20+	20+
<i>Trichopteryx polyommata</i>	✓		20+	✓	✓	✓	?	20+		0	✓		✓	20+	*✓
<i>Macaria carbonaria</i>	✓	✓	✓	✓	✓			<15					✓	✓	
<i>Epione vespertaria</i>	✓	✓	✓	✓	✓	?	0	4		0	?	?	✓	20+	5*
<i>Lycia zonaria</i>		✓	3*			20+	0	20+*	3	2	?			✓	
<i>Siona lineata</i>	✓	✓	✓	✓	✓	20+	11	4		20+	✓		✓	20+	20+
<i>Aspitates gilvaria</i>				✓	7	20+	0	<10	>1	4	✓	0	✓	✓	8*
Sphingidae															
<i>Hemaris tityus</i>	✓	✓	✓	✓	✓	✓	0	20+*	1	2	✓	0	✓	20+	20+
Arctiidae															
<i>Coscinia cribraria</i>	✓	✓	✓	✓	✓		20+	<5*		8	✓	20+	✓	20+	13*
Noctuidae															
<i>Noctua orbona</i>	✓	✓	✓	✓	✓	ca. 20	20+	20+	?	15	✓	20+	✓	✓	20+

	NR	DK	SW	SF	EN	DT (B-W)	NL	GB	IR	BL	ES	PR	IT	AU**	BG
<i>Protolampra sobrina</i>	✓	✓	✓	✓	✓	10 (post 1970)	?	<20		1	3-4		✓	✓	
<i>Xestia alpicola</i>	✓	I/A	✓	✓	✓			<15	2				✓	✓	
<i>Xestia ashworthii</i>	R	I/A	20+	✓	✓	20+		20+			✓		✓	20+	18*
<i>Xestia rhomboidea</i>	R	✓	✓		2 (I/A?)	20+		20+		4	5-10		✓	20+	20+
<i>Polia bombycina</i>	✓	✓	✓	✓	✓	20+	20+	<20	?	10	5-10		✓	20+	20+
<i>Heliophobus reticulata</i>	✓	✓	✓	✓	✓	20+	20+	<20	1	15	7-10	?	✓	20+	20+
<i>Hadena albimacula</i>	R	✓	✓	✓	✓	10 (post 1970), 9(post 1980), 2 (1990- 1997)	2	<10		5	✓	6*	✓		20+
<i>Acosmetia caliginosa</i>						0		1			4-5		✓		
<i>Athetis pallustris</i>	R	✓	✓	✓	✓	3	?	<5		0	3-4	?	✓	✓	12*
<i>Calophasia lunula</i>	✓	2-3	✓	✓	✓	20+	20+	<20		12	?		✓	20+	20+
<i>Hydraecia osseola</i>								3-4			7-8		4		
<i>Cosmia diffinis</i>		I/A	1			10 (post 1970)	?	<15		0	✓	1	✓		20+

	NR	DK	SW	SF	EN	DT (B-W)	NL	GB	IR	BL	ES	PR	IT	AU**	BG
<i>Myhimna turca</i>		✓	5	✓	✓	20+	9	20+*		5	4-5		✓	✓	20+
<i>Oria musculosa</i>						ca. 10		1?		1	✓	3*	✓		12*
<i>Jodia croceago</i>						0	0	?		0	✓	3	✓		20+
<i>Dicycla oo</i>		0	20+	I/A		3	?	<5		4	✓	4	✓		20+
<i>Moma alpium</i>		✓	✓	✓	✓	20+	20+	20+*		12	15-20	16*	✓	✓	20*
<i>Shargacucullia lychnitis</i>		✓	10	I/A	2	>20		20+*		6	10-15		✓	20+	6*
<i>Xylena exsoleta</i>	I/A?	✓	✓	✓	4 (I/A?)	ca. 20	?	20+		0	✓	3*	✓	✓	20+
<i>Polymixis xanthomista</i>						20+		20+	?		✓	9*	✓	20+	2*
<i>Lygephila cracca</i>	✓	4-5	✓	✓	5	20+		<10	?	1	✓	6*	✓	20+	20+
<i>Tyta luctuosa</i>		✓	R	I/A	5	20+	I/A	<15		2	✓	20+	✓		20+
<i>Catocala spona</i>	I/A	✓	20+	<10	✓	20+	6	<10		8	✓	0	✓	✓	20+
<i>Catocala promissa</i>		✓	✓	<10	✓	20+	I/A	<20		4	✓	6*	✓	✓	20+
<i>Schrankia taenialis</i>		1	R			3	?	20+	1?	4			✓	✓	20*
<i>Hypena rostralis</i>	R	✓	✓	✓	✓	20+	20+	20+*		20+	✓	9*	✓	20+	20+
<i>Pechipogo strigilata</i>	✓	✓	✓	✓	✓	20+	3	<15	?	6	2	1	✓		20+
<i>Trisateles emortualis</i>	R	✓	✓	✓	✓	20+	16	2?		20+	5-10		✓	✓	20+
<i>Paracolax tristalis</i>	✓	0?	✓	✓	✓	20+	11	<15		1	5-10	1	✓		20+

Literature available

From the completed questionnaires it is clear that many countries have distribution maps available for at least some species or families of moth, although some of these may be rather out of date. These include Belgium (some families); Denmark (some families); Estonia (some); Finland; Germany, Baden-Württemberg (some families); Ireland (some families only); The Netherlands (some families); Portugal (available, but uncertain whether or not published); and Spain (generally outdated and not accurate). This is almost certainly an incomplete list. Similarly, many countries have produced a Red Data Book or Red List, including Denmark; Estonia; Finland; Germany, Baden-Württemberg; Italy; and Spain (although now considered rather outdated).

Table 2: Status of the UK BAP moths in Europe - Trend

Key

- † Extinct
- ↔ More or less stable
- ↑ Possibly increasing
- ↓ Possibly decreasing
- ↑ Increasing
- ⬆ Increase (200%)
- ⬇ Decreasing
- ⬇ Decrease (50-100%)
- ↑↓ Populations fluctuate
- ↑↓ Populations fluctuate, possibly decreasing
- ↑↑ Populations fluctuate, possibly increasing
- ? Trend not known
- ?? Status not known
- I/A Immigrant or Adventive
- * Based on an incomplete return

Key to the countries

NR	Norway	IR	Ireland
DK	Denmark	BL	Belgium
SW	Sweden	ES	Spain
SF	Finland	PR	Portugal
EN	Estonia	IT	Italy
DT(B-W)	Germany (Baden-Wurttemberg only)	AU	Austria
NL	The Netherlands	BG	Bulgaria
GB	Great Britain		

	NR	DK	SW	SF	EN	DT (B-W)	NL	GB	IR	BL	ES	PR	IT	AU*	BG
Zygaenidae															
<i>Zygaena loti</i>	↓	↓	↓	↓	↔	↔	↔	↓		↔	?		↔	↔	?
<i>Zygaena viciae</i>					↔	↔	↔	↔		↔	?		↔	↓	?
Sesiidae															
<i>Pyropteron chrysidiformis</i>						↔		↔		↔	?	↔	↔	?	?
Coleophoridae					?			↔							
<i>Coleophora tricolor</i>															
Lasiocampidae					↔	↓	↔	+		↔	↔	↔	↓	?	?
<i>Phyllodesma ilicifolia</i>	↔	↓	↔	↔	↔	↓	↔			↔	↔				
Geometridae															
<i>Antonechloris smaragdaria</i>	↔			↔	↔	↔		+		+	?		↔	?	↔
<i>Cyclophora pendularia</i>	?	↑	↔	↑↓	↔	↓	↔	↓		↔	?	?	?	?	↔
<i>Idaea ochrata</i>		↑	↑			?	↔	↔		+	?	↔	↔	?	↔
<i>Idaea dilutaria</i>			↔			?		↔		↔	?		↔	?	↔
<i>Scotopteryx bipunctaria</i>					↑	↔	↔	↑		+	?		↔	↔	↔
<i>Eustroma reticulata</i>	↔	↓	↔	↓	↑	?	↔	↑↑	?	↑	??		?	?	?
<i>Pareulype berberata</i>		↑↑	↔	↓	↑↑	?	↔	↔	?	↑	?		?	↔	?
<i>Rheumaptera hastata</i>	↔	↑	↔	↑		?	↔	↓		↑	??		?	↔	?
<i>Hydrelia sylvata</i>	↔	↔	↑↑	↑	↔	?	↔	↓	?	↔	??		?	?	?
<i>Minoa murinata</i>			↑↑	↑↑	↔	?	↔	↔		↔	?	?	↔	↔	↔

	NR	DK	SW	SF	EN	DT (B-W)	NL	GB	IR	BL	ES	PR	IT	AU*	BG
<i>Trichopteryx polycommata</i>	↔		↑↑	↔	↔	?	?	↓		+	?		?	↔	?
<i>Macaria carbonaria</i>	↓	↓	↔	↓	↔			↔?					?	↔	
<i>Epione vespertaria</i>	↔	↓	↔	↑	↔	??	↓	↔		+	??	?	?	↔	?
<i>Lycia zonaria</i>		↑↑	↓		?	?	↓	↔	?	↔	??			↓	
<i>Siona lineata</i>	↓	↔	↓	↔	↔	?	+	↑	?	↔	?	??	↔	↓	
<i>Aspitates gilvaria</i>				↓	↔	?		↓		↔			↔	?	
Sphingidae															
<i>Hemaris tityus</i>	↔	↓	↑↑	↓	↔	↓	+	↔	↓	↓	↔	+	↔	↔	↔
Arctiidae															
<i>Coscinia cribraria</i>	↔	↓	↔	↓	↔		↔	↓		↑↑	↔	↔	↔	↔	?
Noctuidae															
<i>Noctua orbona</i>	↔	↔	↑↑	↓	↓	↔	↓	↓	??	↔	?	↔	↔	?	↔
<i>Protolampra sobrina</i>	↔	↑↑	↔	↔	↔	↓	↑?	↔	?	↓	?		↔	?	
<i>Xestia alpicola</i>	↔	I/A	↔	↓	↔			↔					?	↔	
<i>Xestia ashworthii</i>	↔	I/A	↔	↓	↔			↔					↔	↔	
<i>Xestia rhomboidea</i>	↔	↔	↓	↓	I/A?			↓		↔	?		↔	↔	?
<i>Polia bombycina</i>	↔	↔	↑↑	↔	↔		↔	↓	?	↓	?		↔	↔	?
<i>Heliophobus reticulata</i>	↔	↔	↑↑	↓	↔		↔	↓	↔	↔	?	?	↔	↔	?
<i>Hadena albimacula</i>	↔	↓	↔	↓	↔	↓	↔	↓	↔	↔	?	↓	↔	↔	?
<i>Acosmetia caliginosa</i>	↔			↓	↔	+	↔	↓		↓	?		?		

	NR	DK	SW	SF	EN	DT (B-W)	NL	GB	IR	BL	ES	PR	IT	AU*	BG
<i>Aethis pallustris</i>	?	↓	↔	↓	↔	↓	?	↓		+	?	?	↔	↓	↔
<i>Calophasia lunula</i>	↔	↓	↔	↓	↔	↔	↓	↑		↔	??		↔	↔	↔
<i>Hydraecia osseola</i>			↔			↓	?	↑		+	?	?	?		↔
<i>Cosmia diffinis</i>		I/A			↔	↔	↑	↔		↓	?		↓	↓	↔
<i>Mythimna turca</i>		↑↑	↓			↓	↑	↓		↓	?	↓	↔	↓	↔
<i>Oria musculosa</i>		I/A				↓	+	↓		↓	?	↓	↔		↔
<i>Jodia croceago</i>						↓	+	↓		↓	?	↓	↔		?
<i>Dicycla oo</i>		+	↓	I/A		↓	?	↓		↓	?	↓	↔	↓	↔
<i>Moma alpium</i>		↑↑	↔	↓	↔	↔	↓	↑		↔	?	↓	↔	↓	↔
<i>Shargacucullia lychnitis</i>		↓		I/A	↑	↔	↓	↑		↓	?	↓	↔	↓	?
<i>Xylena exsoleta</i>	I/A?	↔	↑	↓	?	↓	↔	↓	?	+	?	↓	↔	↓	?
<i>Polymixis xanthomista</i>						↔		↔	?		?	↓	↔	↔	?
<i>Lygephila cracca</i>		↓	↔	↓	↔	↓		↔		↓	?	↓	↔	↔	?
<i>Tyta luctuosa</i>	↔	↓	↓	I/A	↔	↔	I/A	↓		↓	?	↔	↔	↓	?
<i>Catocala sponsa</i>	I/A	↑↑	↓	↑	↑↑	↓	↑	↔		↔	?	+	↔	↓	?
<i>Catocala promissa</i>		↑↑	↔	↓	↑↑	↓	I/A	↔		↓	?	↔	↔	↓	?
<i>Schrankia taenialis</i>		↑	↔			?	?	↔	??	↓			?	↓	?
<i>Hypena rostralis</i>	↔?	↑	↔	↔	↔	↔	↑	↔		↓	?	↔	↔	↓	↔
<i>Pechipogo strigilata</i>	↔	↔	↔	↔	↓	↔	↑	↓	?	↓	?	?	↔	↓	?
<i>Trisateles emortualis</i>	↑	↔	↔	↓	↓	↔	↓	↓		↔	?		↔	↓	?
<i>Paracolax tristalis</i>	↔	↑?	↔	↓	↑	?	↑	↓		↓	?	?	↔	↓	?

Conclusions

Although the data collated have a number of shortcomings, several species appear to be confined to just a few sites in each of several countries and for some there is the suggestion of a general decline. Based on the results of this survey it is tentatively suggested that the UK has an international responsibility for the conservation of the following species:

Straw Belle <i>A. gilvaria</i>	White-spotted Pinion <i>C. diffinis</i>
White Spot <i>H. albimacula</i>	Brighton Wainscot <i>O. musculosa</i>
Reddish Buff <i>A. caliginosa</i>	Orange Upperwing <i>J. croceago</i>
Marsh Moth <i>A. pallustris</i>	Heart Moth <i>D. oo</i>
Marsh Mallow <i>H. osseola</i>	

The Silky Wave *I. dilutaria*, Belted Beauty *L. zonaria* and Scarce Blackneck *L. craccae* could possibly also be added to this list.

With respect to the UK BAP, although occurring in a distinct ecological niche in the UK, it is clear that the taxonomic status of *Coleophora tricolor* needs investigating.

All but one of the contributors considered that a European Red Data Book for moths was desirable and the majority felt that it should be selective and not a comprehensive treatment of all species. Various comments were received in relation to the possible benefits, or drawbacks, of a European Red Data Book. These can be summarised as follows:

1. Assist in protecting habitats (several mentions)
2. Provide international perspective (several mentions)
3. Aid in prioritising effort within individual countries
4. Easier to find financial support for study of moths
5. Would be a valuable contribution to conservation
6. Important reference book for officials and scientists
7. Could lead to a ban on collecting listed species

At present there are no plans to undertake a European RDB for moths, but this would clearly be extremely valuable if adequate resources could be found.

Finally, an appeal: I would be pleased to hear from anyone with information on the status of any of the UK BAP species from any other European countries.

Acknowledgements

I would particularly like to thank the contributors who gave freely of their time. This article would not have been possible without their willing and generous assistance. In alphabetical order these were: Leif Aarvik (Norway); Stoyan Beshkov (Bulgaria); Ken Bond (Ireland); Michael Fibiger (Denmark);

Ole Karsholt (Denmark); Sjaak Koster (The Netherlands); Ernestino Maravalhas (Portugal); Kauri Mikkola (Finland); Willy de Prins (Belgium); Nils Ryrholm (Sweden); Victor Sarto i Monteys (Spain); Axel Steiner (Baden-Württembergs, Germany); Gerhard Tarmann (Austria); Jaan Viidalepp (Estonia); Rob de Vos (The Netherlands); and Alberto Zilli (Italy). I would like also to take this opportunity to thank Chris Van Swaay (De Vlinderstichting) for supplying a copy of the questionnaire used for the Red Data Book of European Butterflies and to Martin Warren (Butterfly Conservation) and Martin Honey (Natural History Museum) for their suggestions and advice.

References

- Karsholt, O. & Razowski, J. 1996. *The Lepidoptera of Europe. A Distributional Checklist*. Apollo Books, Stenstrup.
- Parsons, M.S., Green, D.G. & Waring, P. 2000. The Action for Threatened Moths Project. *Entomologist's Record & Journal of Variation*, **112**: 15-21.
- UK Biodiversity Group, 1999a. *UK Biodiversity Group. Tranche 2 Action Plans. Volume IV – invertebrates*. English Nature, Peterborough.
- UK Biodiversity Group, 1999b. *UK Biodiversity Group. Tranche 2 Action Plans. Volume VI – terrestrial and freshwater species*. English Nature, Peterborough.
- Van Swaay, C.A.M. & Warren, M.S. 1999. *Red Data Book of European Butterflies (Rhopalocera)*. Nature and Environment, No. 99, Council of Europe Publishing, Strasbourg.

Early appearance of the Spring Usher *Agriopsis leucophaearia* (D. & S.) (Lep.: Geometridae) in north London (Middlesex) in January

During the morning of 25 January 2001, a mild, showery, but sunny day, my wife brought in a moth found fluttering on the wet ground in a neighbour's garden. It was a fine, fresh, male Spring Usher *Agriopsis leucophaearia*, and had obviously only recently emerged. I have not found this species previously in the area and Colin Plant (1993. *Larger moths of the London Area*. LNHS) says of it "... a widespread, but rather local resident, generally not found in the urban area of London and relatively infrequently in the suburbs". Both Plant and Bernard Skinner (1984. *Colour identification guide to moths of the British Isles*. Viking), note that the moth usually emerges from mid-February to mid-March, hence its colloquial name. As a boy, I used to find this species commonly in Clowes Wood, Warwickshire (see Hammond, H. E., 1957. A survey of the Lepidoptera of a small oak-beech wood on the Midland Keuper Marl with ecological notes on the species. *Proc. Birmingham nat. Hist. phil. Soc.* **18**(6): 147-173), but from my youthful notebooks the earliest male *A. leucophaearia* I ever found was there on 7 February (in 1948).— K. G. V. SMITH, 70 Hollickwood Avenue, London N12 0LT.

More early emergences of moths

The receipt of Ken Smith's note (above) reporting an early example of the Spring Usher in his north London garden prompted me to seek the permission of a number of other entomologists to collate and publish similarly interesting records that they had already disseminated on the Internet. The following is a summary of these:

Spring Usher *Agriopsis leucophaearia* (D.& S.)

(Normal flight period commences mid February).

Rowner, Gosport, South Hampshire (VC 11), three on 8 January (Lee Marshall). Lee also noted December Moth *Poecilocampa populi* (L.) as late as 6 January 2000 at this site.

Ashill Wood, South Somerset (VC 5), one on 21 January at m.v. light (Bill Urwin & James McGill) and then five on 24 January 2001, picked up by driving along the road through the wood and leaping out to net them as they were caught in the headlights (James McGill);

Stoke Holy Cross. East Norfolk (VC 27), one on 25 January and one on 27 January (Andy Musgrove);

Elland, South-west Yorkshire (VC 63), two on 23 January, one on 24 January 2001 and four on 30 January 2001 – all different examples – at m.v. light (Paul Talbot).

Marshall's Heath, Hertfordshire (VC 20), Four examples in mid January (John Murray).

Orchard Wood, Taunton (VC 5), one on 30 January 2001 (James McGill).

Freshwater, Isle of Wight (VC 10), one on 30 January 2001 (Sam Knill-Jones);

Monks Wood, Huntingdonshire, (VC 31), one in the RIS light trap on 24 January 2001 and one over the weekend from 24 to 26 January 2001 (Nick Greatorex-Davies). Nick comments that this does not strike him as being particularly early for this species, since he usually expects them by late January here and in some years even earlier, e.g., 8 January in 1989 and 1992.

Raydon Great Wood, nr Hadleigh, East Suffolk, (VC 25) twenty plus, on 24 January 2001 (Tony Prichard, Graham Bull and Neil Sherman).

Pale Brindled Beauty *Phigalia pilosaria* (D.& S.)

(Normal flight period commences January).

Stoke Holy Cross. East Norfolk (VC 27), one on 22 December 2000 (Andy Musgrove).

Early Grey *Xylocampa areola* (Esper)

(Normal flight period commences mid March).

Taunton, South Somerset (VC 5), one at m.v. light on 21 December 2000 (James McGill);

Ashill, South Somerset (VC 5), two on 22 December 2000 and singletons on 23 and 27 December 2000, all at actinic light (Eric Kearns).

March Moth *Alsophila aescularia* (D. & S.)

(Normal flight period commences March).

Orchard Wood, Taunton (VC 5), three on 30 January (James McGill).

A further two reports are worthy of placing on permanent record, as follows:

December Moth *Poecillocampa populi* (L.)

Rowner, Gosport, South Hampshire (VC 11), persisting until 6 January 2000 (Lee Marshall).

Large Yellow Underwing *Noctua pronuba* (L.)

Shotton, North Wales, one at m.v. on the morning of 21st January (Colin Jones)

Sadly, no un-seasonal species seem to have found their way to my own garden trap yet. Whatever one's views on the issue of "global warming", it is undeniably the case that the seasons have shifted in recent years. Although some may, perhaps, consider some of these records above to be less than unusual, it is nevertheless worth placing on record, for the longer term future reference, any dates which seems to be at odds with "the norm". I would, therefore, welcome further reports of unusually early or late dates for any moth species, particularly from sites where comparative dates are also available from periods of ten, twenty or even more years ago. These may be sent either as Notes for publication or as records for inclusion in some future summary article. Information from specialists in other Orders of insects is also welcomed.

I am most grateful to the observers whose names appear above for permission to include their records in this present summary.— Colin W. Plant, 14 West Road, Bishops Stortford, Hertfordshire CM23 3QP (E-mail: Colinwplant@compuserve.com).

***Dioryctria schuetzeella* Fuchs (Lep.: Pyralidae) in Dorset**

Further to the earlier notes by Aston (2000. *Ent. Rec.* **112**: 215) and Plant (2000. *Ent. Rec.* **112**: 215-216) adding *Dioryctria schuetzeella* to the county lists for North Hampshire and Hertfordshire, respectively, I would like to record that I took a specimen of this very local pyrale in July 1999 on Parley Heath, Dorset. As far as I am aware this is the first record for Dorset (VC 9). — R. R. COOK, 11 Greensome Drive, Ferndown, Dorset, BH22 8BE.

CHEILOSIA RANUNCULI DOCZKAL (DIP.: SYRPHIDAE) IN BRITAIN

DAVID GIBBS¹ AND COLIN W. PLANT²

¹6 Stephen Street, Redfield, Bristol BS5 9DY. (E-mail: davidjgibbs@aol.com)

²14 West Road, Bishops Stortford, Hertfordshire CM23 3QP. (E-mail: Colinwplant@compuserve.com)

Introduction

OVER THE PAST FEW YEARS, both of us have slowly become aware that there was a degree of morphological variation amongst examples of the extremely common hoverfly *Cheilosia albitarsis* Mg. During 2000, one of us (Gibbs, 2000) drew attention to the possibility that this might actually comprise two species in Britain, labelling them form A and form B, and noted that European workers were currently researching this situation. During February 2001, the problem was eventually resolved by the publication of the split of *C. albitarsis sensu* Meigen into two new taxa, *C. ranunculi* (form A *sensu* Gibbs) and *C. albitarsis sensu* Doczkal (form B *sensu* Gibbs) (Doczkal, 2001).

Doczkal's paper referred to the presence of both species in Britain, citing as sources both Martin Speight (1993, *in lit.*) and Gibbs (2000). Since both species fly together from early May onwards, we take this opportunity to draw the known existence of *C. ranunculi* in Britain to the attention of a wider audience in advance of the impending field season, so that entomologists may be able to take maximum advantage of the information.

It is also appropriate to provide a few brief notes on the separation of *C. ranunculi* from *C. albitarsis sensu* Doczkal. It should be noted that because type specimens are either lost or are females, Doczkal applied the name *albitarsis* to the more widespread species; for this reason, we refer to this segregate as *sensu* Doczkal, as distinct from *sensu* Meigen.

Summary of known British records of *Cheilosia ranunculi*

The following records are presented in order of the date of the record:

Older records

No locality, 21.v.1889, C. J. Watkins (Bristol City Museum);

No locality, 13 .v.1890, C. J. Watkins (Bristol City Museum);

No locality, 24.v.1890, C. J. Watkins (Bristol City Museum);

nr. Painswick, Gloucestershire (VC 34), 28.iv.1893, C. J. Watkins (Bristol City Museum);

Island, K. Mill, Gloucestershire (VC 34), 14.v.1894, C. J. Watkins (Bristol City Museum);

K. Mill, Gloucestershire (VC 34), 09.v.1897, C. J. Watkins (Bristol City Museum);

Tickenham, Somerset (VC 6), vi.1921, H. L. F. Audcent (Bristol City Museum);

Shapwick, Somerset (VC 6), 20.v.1923, H. L. F. Audcent (Bristol City Museum);

Tickenham, Somerset (VC 6), 16.v.1925, H. L. F. Audcent (Bristol City Museum);

Kingsweston, Gloucestershire (VC 34), 02.v.1926, H. L. F. Audcent (Bristol City Museum);

Olveston, Gloucestershire (VC 34), 29.iv.1927, H. L. F. Audcent (Bristol City Museum);
Sharpham, Somerset (VC 6), 2.vi.1936, H. L. F. Audcent (Bristol City Museum);
Thames M'rs[Marshes], Abbey Woods, Greater London [West Kent] (VC 16),
4.vi.1938 (BENHS collection);
Clevedon, Somerset (VC 6), 22.iv.1945, H. L. F. Audcent (Bristol City Museum);
Location illegible, 9.v.1947, C. O. Hammond (BENHS collection)
Bicknoller, Somerset (VC 5), 23.iv.1948, H. L. F. Audcent (Bristol City Museum);
Breamore, Hampshire (VC 11), 4.v.1950 (BENHS collection)
Whippendell Woods, Hertfordshire (VC 20), 10.v.1968, C. O. Hammond (BENHS
collection).

Recent records

Benfleet Downs, South Essex (VC 18), TQ 795859, 13.v.1980, R. G. Payne;
Belhus Park, Aveley, South Essex (VC 18), TQ 572823, 11.v.1983, C. W. Plant;
Ebbor, Somerset (VC 6), 20.v.1983, R. M. Payne (Bristol City Museum);
Windsor Great Park, Berkshire (VC 22), SU 9584, 9.v.1984, D. J. Gibbs;
Sizewell Belts SSSI, East Suffolk (VC 25), TM 4664, 1X, 29.v.1989, C. W. Plant;
Emblems Coppice, Hatfield Forest, North Essex (VC 19), TL 5218, 21.iv.1990, C. W.
Plant.
Vange Marshes, South Essex (VC 18), TQ 721865, 25.v.1990, R. G. Payne;
Lower Woods, Gloucestershire (VC 34), ST 7488, 8.v.1999, D. J. Gibbs;
Hartslock, Oxfordshire (VC 23), 24.iv.2000, C. M. T. Raper;
Hitterhill Coppice, Wyre Forest, Worcestershire (VC 37), SO 771763, 15.v.2000,
R. G. Payne.

For ease of interpretation, these records are mapped by vice county in Figure 1.

Ecology

The larval requirements of *C. ranunculi* are currently unknown, though Doczkal (*op. cit.*) suggests a possible association with *Ranunculus bulbosus*. Roger Payne (pers. comm.), reports that all three of the sites listed above where he found *Cheilosia ranunculi* were of a marshy character, dominated by rushes *Juncus* spp., and with both *Ranunculus acris* and *R. repens* plants present.

Cheilosia albitarsis sensu Doczkal has been taken by both of us, and by Roger Payne, at several localities where *C. ranunculi* was also recorded on the same visit and so it is clear that the two species fly together.

Abundance

From the information so far available, it seems as if *C. ranunculi* is a scarcer species in Britain than *C. albitarsis*, with the latter rather more frequent in recent collections than the former. Roger Payne (pers. comm.) found five males amongst his total collection of 33 specimens; CWP identified three males from his collection of 41 British *albitarsis sensu* Meigen and amongst European material only three from seventeen Hungarian specimens were *ranunculi*.

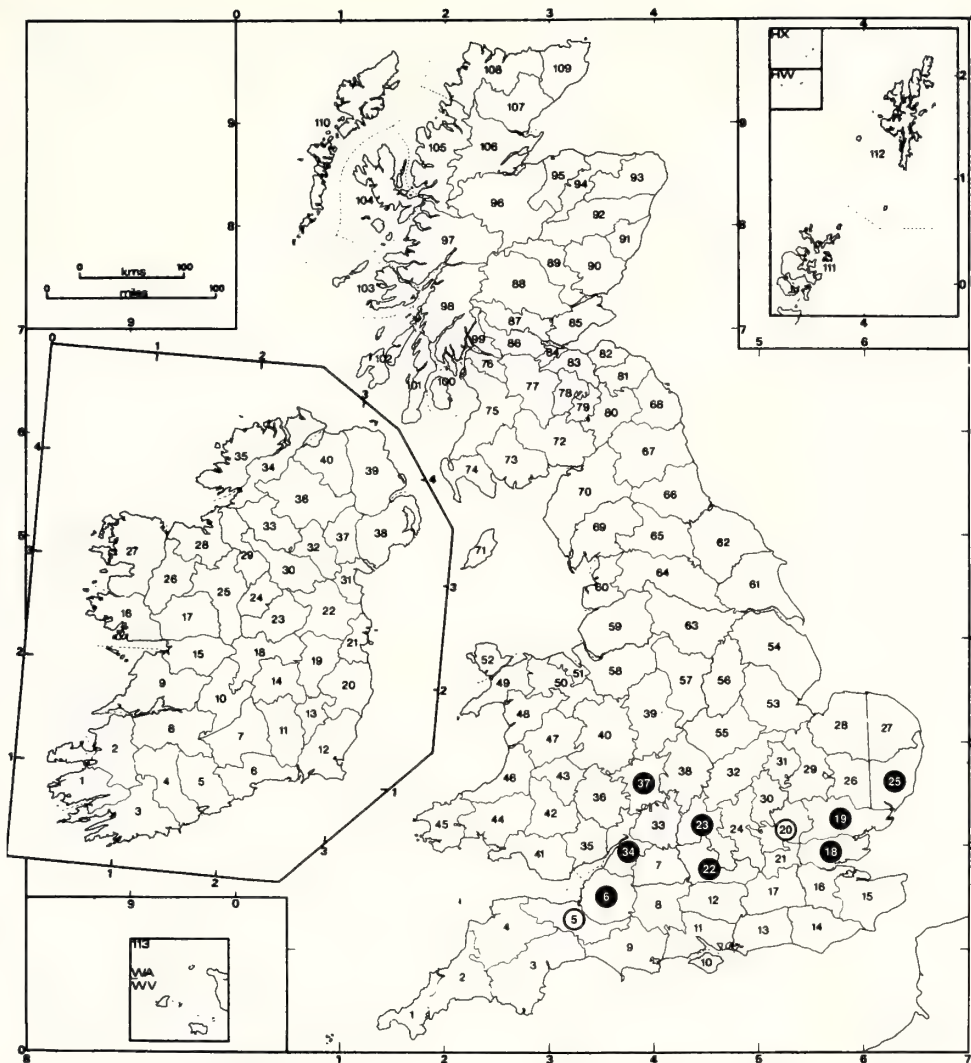


Fig. 1. Distribution by vice county of known records of *Cheilosia ranunculi* Doczkal (Syrphidae) in the British Isles at March 2001. For records made prior to 1980 the vice county number is encircled; for records made from 1980 onwards, the vice county number is shown in white within a black dot.

However, this is not the case in the older collections, at least judging by the collections in the Bristol City Museum. Specimens collected by Watkins at the end of the 19th century and by Audcent in the first part of the 20th century indicate a presence in equal numbers. This suggests that *C. ranunculi* has declined over the last 50 years so may have more specialist habitat requirements.

Identification

Two external characters are noted by Doczkal as being reliable for the separation of males (although he notes that specimens of *albitarsis* from southern Europe may lack the black hairs on T2). However, whilst these characters are sometimes repeated in the females there is some variation and it is suggested by him that females cannot be reliably separated on present knowledge. Records of the two segregate species submitted to the British

Isles Recording Scheme should, therefore, be based only on males and the sexes should be stated in reports so that the identifications are clear.

The following key is adapted from Doczkal (*op. cit.*) to which the reader is referred for greater detail. Care should be exercised when examining the hairs on the thoracic dorsum. Pale hairs can be very difficult to discern in some individuals and light reflecting off black hairs can sometimes make them appear pale when they are not so.

- 1 Antero-lateral corners of tergite 2 with at least one black hair (at least in northern populations), sometimes several. Thoracic dorsum entirely black haired..... *albitarsis* ss Doczkal
- Antero-lateral corners of tergite 2 entirely pale-haired with absolutely no black hairs at all. Thoracic dorsum with a narrow band of pale hairs at the anterior end *ranunculi* Doczkal

We strongly urge that all specimens in this group should have their identification confirmed by examination of the genital surstyli (Fig. 2). This is practical without complicated preparation in most pinned specimens if the genital capsule is hinged out when the specimen is set (as one does for *Sphaerophoria* species), and held in place by a micro pin or similar until set. The surstyli should be easily visible in such specimens.

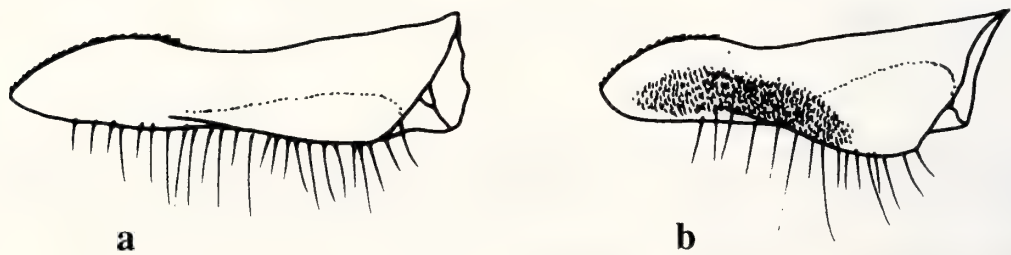


Fig. 2. Dorsal views of sursturli. **a.** *Cheilosia ranunculi* (Lower Woods, Gloucestershire); **b.** *Cheilosia albitarsis* (Max Bog, Somerset), stippling on outer surface represents fine, pale microtrichia.

Acknowledgements

We are very grateful to the staff at the Bristol City Museum for allowing access to the collections held there, particularly Sam Hallett who compiled the data on this species. We are also grateful to Roger Payne of Southend Museum, Essex, for permission to include his records and field observations in this paper.

References

Doczkal, D., 2001. Description of *Cheilosia ranunculi* spec. nov. from Europe, a sibling species of *C. albitarsis* Meigen (Diptera, Syrphidae). *Volucella* **5**: 63-78).

Gibbs, D., 2000. Are there two species confused under *Cheilosia albitarsis*? *Hoverfly Newsletter*, number 30: 4-5.

***EURYTOMA MAYRI* ASHMEAD (HYM.: EURYTOMIDAE)
AND *TORYMUS RUBI* (SCHRANK) (HYM.: TORYMIDAE):
INSECTS NEW TO IRELAND**

J. P. O'CONNOR

National Museum of Ireland, Kildare Street, Dublin 2, Ireland.

THERE ARE FEW IRISH RECORDS of the cynipid *Diastrophus rubi* (Bouché) (O'Connor and Bond, 1996; O'Connor and Nash, 1998). The species causes galls on *Rubus* and was only known on the island from specimens reared from three galls found in the south-west and south-east (counties Cork, Kerry and Wexford). As it is common in Britain (Spooner and Bowdrey, 2000), *D. rubi* was an inexplicably rare Irish insect since its food plants are widespread and abundant. On 27 April 2000, the author was surprised, therefore, to discover hundreds of galls on *Rubus* growing on the sand dunes at Woodstown beach, Co. Waterford (Irish grid reference S 6905). This site is also in the south-east. Several galls were collected and subsequently stored in plastic bags in the outside passage of a suburban house. Numerous causers commenced emerging on 2 May and continued to do so until 28 May. Their identity was confirmed as *D. rubi* using Eady and Quinlan (1963).

On 15 May, eurytomids also appeared in the bags and over 100 ♂♂ ♀♀ hatched until 25 June. A torymid appeared on 29 May and, by 3 July, 1 ♂ 13 ♀♀ torymids had emerged. Using Zerova (1988), the eurytomids were identified as *Eurytoma mayri* Ashmead – a known parasitoid of *D. rubi* and *D. mayri* Reinhard. This species is new to Ireland. It has been previously recorded from Austria, Belgium, Great Britain, Hungary, Spain and the U.S.S.R. (Noyes, 1998).

The torymids were determined as *Torymus rubi* (Schrank), another species new to Ireland, using Graham and Gijswijt (1998). *T. rubi* has been reared from the galls of *D. rubi*, *Diplolepis rosae* (L.) (Hym.: Cynipidae), *Perrisia acrophilae* Winnertz (Dipt.: Cecidomyiidae) and *Stereonychus fraxini* (Col.: Curculionidae). It is widely distributed in Europe (Austria, Belgium, Croatia, Czech Republic, France, Germany, Great Britain, Poland, Spain and The Netherlands).

The Irish eurytomid and torymid faunas are poorly known (O'Connor, Nash and Bouček, 2000). The above additions bring the number of species to 18 for the former and 33 for the latter. This contrasts with some 91 and 75 species respectively reported from Great Britain.

Voucher specimens have been deposited in the National Museum of Ireland.

References

- Eady, R. D. and Quinlan, J. 1963. Hymenoptera. Cynipoidea. Key to families and subfamilies and Cynipinae (including galls). *Handbk. Ident. Br. Insects* **8(1a)**: 1-81.

- Graham, M. W. R. de V. and Gijswijt, M. J. 1998. Revision of the European species of *Torymus* Dalman (s. lat.) (Hymenoptera: Torymidae). *Zool. Verh. Leiden* **317**: 3-202.
- Noyes, J. S. 1998. *Catalogue of the Chalcidoidea of the world*. ETI/The Natural History Museum, Amsterdam, London.
- O'Connor, J. P. and Bond, K. G. M. 1996. *Diastrophus rubi* (Bouché) (Hymenoptera: Cynipidae), a gall wasp new to Ireland. *Ir. Nat. J.* **25**: 190.
- O'Connor, J. P. and Nash, R. 1998. Further Irish records of *Diastrophus rubi* (Bouché) (Hym., Cynipidae). *Entomologist's mon. Mag.* **134**: 4.
- O'Connor, J. P., Nash, R. and Bouček, Z. 2000. A catalogue of the Irish Chalcidoidea (Hymenoptera). *Occ. Publ. Ir. biogeog. Soc.* **No. 6**.
- Spooner, B. M. and Bowdrey, J. P. 2000. Checklist of British galls and gall-causing organisms. 4. Hymenoptera, part 1 Cynipinae: preliminary list. *Cecidology* **15**: 41-74.
- Zerova, M. D. 1988. Family Eurytomidae. In Medvedev, G. S. (ed.) *Keys to the insects of the European part of the U.S.S.R.* **3(2)** pp 594-650. Brill, Leiden.

***Chrysoteuchia culmella* (L.) (Lep.: Pyralidae) flight period**

An article in this journal (*Ent. Rec.* **112**: 272) suggests that the normal flight period of *Chrysoteuchia culmella* is June and July. My own observations in Bedfordshire are that this species is regularly on the wing during August, and in the last few years also in September.

Between 1974 and 1995 this moth was recorded from week 24 (11-17 June), with early records in 1988, week 23 and 1992, week 22 (28 May - 3 June). In 1998 a single record in week 19 (7-13 May) is assumed to be an aberration.

In most years the flight period was continuous until about week 33 (13-19 August). Isolated late records in both 1977 and 1982 were week 37 (10-16 September). In 1985 and 1995 last records were in week 36 (3-9 September). These flight periods were published in *The Butterflies and Moths of Bedfordshire* (Arnold, V.W., Baker, C.R.B., Manning, D.V., and Woiwod, L.P. 1997, Bedfordshire Natural History Society)

In the last four years the flight period has been continuous, with records in each week as follows:

	from	to
1996	week 23	week 37 (10-16 September)
1997	week 23	week 34 (20-26 August)
1998	week 24	week 36 (3-9 September)
1999	week 23	week 34 (20-26 August)

The records in recent years appear to show an extended emergence, rather than a second generation of moths.— DAVID MANNING, 27 Glebe Rise, Sharnbrook, Bedford MK44 1JB.

Little-known entomological literature-7

An enquiry from my friend Christopher Nissen as to the authorship of a second (anon and undated) edition of a book entitled *Butterfly and moth collecting* and published by L. Upcott Gill presented me with an intriguing problem, and raises the interesting question as to why the author, clearly named in the first edition, was then dropped by the publishers in later editions (although acknowledged as the author in one of their adverts) and who then, some years later, published again under his name with a different publisher.

The book is by George E. Simms whose name appears on both the cover and the title page of the 1st edition which is entitled *Butterfly and moth collecting: where to search and what to do* and was published by L. Upcott Gill. It is a small octavo paperback of 116 pages, 57 figures, and my copy has 16 pages of adverts. Undated, but known from other sources to be 1892. Listed in Freeman (*British Natural History Books 1492-1900: A Handlist*) as No. 3422 he surprisingly does not mention later editions. Nor does he record the later book by Simms published in 1899. (See below).

There have clearly been several editions of Simms' book, all of which were published as paperbacks priced 1/- (5p), except the fourth when the price had risen to 1/6 (7.5p) and all had coloured covers featuring Lepidoptera but differing in issues and editions. Only the first edition has the author, George E. Simms, named both on the cover and on the title page. The preface is also by "The Author" and the book was published by L. Upcott Gill, 170, Strand, W.C. Pp [4] + 116 and 57 monochrome Figures. My copy also has 16 pp of adverts, plus those on the end-papers. There is a list of contents but no index.

The second edition (nd) "Revised, Re-arranged and Enlarged" has the title *Butterfly and moth collecting: being practical Hints as Outfit, Most Profitable Hunting Grounds, and Best methods of Capture and Setting*. Published by L. Upcott Gill, Bazaar Buildings, Drury Lane, W.C. (Note change of address) There is a different Preface, this now being by "The Publisher". Pp [8] + 112 and 71 Figures. Simms is not given anywhere as the author. My copy has 18 pp. of adverts. There is no contents list but there is now an extensive index.

Now I would expect an edition of a book calling itself "Revised, re-arranged and enlarged" to follow these claims and the first two are indeed correct, but "enlarged?" Certainly not! Not only is it set in a larger point type but has fewer pages, 104 to the first edition's 116 when you subtract the new and extensive index of eight pages. not present previously.

There would appear to have been some errors when this edition was first produced, for on page 5, Fig. 1 appears as either a clearwing moth or, which is correct, the parasitic wasp *Apanteles glomeratus*. As to the date of publication my copy is undated but is not earlier than 1900, for one of the books advertised is W. J. Lucas's *British Dragonflies (Odonata)* which was

published in that year also by Upcott Gill. The copy in the Cambridge University Library, however, is clearly dated 1901 on the title page as well as having been received by the Library in that year. In my copy the advertising pages quote the title (Butterfly and moth collecting) but not the author while the advertising pages in the 1901 copy specifically state "By G. E. Simms." So are the undated copies earlier or later than 1901? One has to assume that the misprinted Fig 5 would be the first, altered to the correct figure when someone noticed the error, but this is not a certainty.

The third edition (which is in the Entomology Library of the Natural History Museum) appears to be the same as the second, with any errors such as occurred with Fig. 1 corrected, as indeed they were already in my copy and the 1901 copy. I have not seen any later editions but my friend Terry Dillon has informed me he has a fourth. The cover of this is the same as that of the 2nd, but the price is now increased to 1/6 and the publisher is Bazaar, Exchange & Mart, 4-8 Neville Street, London W.C.1. This edition must be later than 1901 and might well date from around 1915.

While the arrangement and extent of included advertising matter is known to vary from copy to copy, on those I have seen, on the verso of the back cover, the 1st edition has Brook's soap, the 2nd & 3rd, Messrs Watkins & Doncaster and the 4th, reported to me by Terry Dillon, Messrs Flatters & Garnett.

In 1899 Dean & Son Ltd. published another work by Simms in their series of *Dean's Practical Guide Books*. The title of this is *Butterflies, moths, and caterpillars: how to catch and keep them*. By G. E. Simms (Author of *Butterfly and moth collecting*). This book, also priced at 1/-(5p) is a soft-back of 64 pages and the copy I inspected was in a bright red linen cover with the title in black lettering, which is also on the spine. There are 21 figures, mainly of apparatus, which are rather crudely drawn and look as if they were done by an amateur rather than a professional draughtsman (Simms himself perhaps?) The various chapters mainly describe apparatus, but also deal with the problem of grease, how to search for eggs and how to blow larvae and arrange the collection. It ends with a list of 67 British butterflies giving scientific and English names, places of resort and time of appearance.

This must be the scarcest of Simms' books, for in spite of my advertising for it and making many enquiries, the only two copies I have been able to trace are in the British Library and Cambridge University Library respectively. It also seems odd that two books, which on the face of it are in competition with each other, were on the market at the same time, and one is left to wonder about the reasons that led to the omission of the author's name on the title page of the later editions of his first book.— BRIAN O. C. GARDINER, 2 Highfield Avenue, Cambridge CB4 2AL.

OBITUARY

**Lieutenant Colonel Arthur Maitland Emmet,
MBE, TD, MA, Hon. FRES, FLS**

15 July 1908 — 2 March 2001

With the death of Maitland Emmet on 3rd March 2001, Britain has lost one of the greatest microlepidopterists of the twentieth century. Nobody working in that field in the British Isles could be unaware of the massive contribution that he made to the study of the British and Irish fauna, and of the debt they owed him. His tireless energy and his willingness to guide and instruct others on the identification, life histories and distribution of these too-little-known species endeared him to many and inspired a whole generation of lepidopterists.



Plate F. Maitland Emmet, with his late wife Katie, searching for leaf mines at Friday Woods, Essex in 1992.

Photograph © Brian Goodey

Maitland Emmet was the youngest child of an Oxfordshire parson, a classical scholar and academic who went on to be Chaplain of University College, Oxford, until his premature death in 1923. Maitland's own career was conventional for someone of his background and education. Indeed, until he was well over 50 years old, he gave no indication that he was to take up the study of microlepidoptera and become a leading authority. This large

and most difficult group of Lepidoptera species was generally neglected by amateurs. However, because of his longevity – his mother, aunt and two sisters have all lived into their nineties – he had ample time to apply his powerful intellect to their study, and he used it with great effect, observing critically and describing with precision and in masterly prose what he had observed.

From early childhood, he showed great interest in butterflies and moths and is still remembered by his elder sister Margery as a small boy out in the fields with his net. This interest was somewhat latent while he was at school, where he was academically bright, winning prizes in English, divinity and mathematics, and where he learnt Latin and Greek, the subjects he went on to read at University College, Oxford. It remained with him throughout his life though taking second place in earlier years, perhaps because he had not yet discovered a sufficient intellectual challenge in the subject. At Oxford he rowed – a sport in which he excelled – though just failed to win his blue. After university, in 1931, he went on to become an English master at St Edward's School, Oxford, where once again rowing occupied his out-of-classroom hours as he coached the school's crew to become one of the best on the river. Wartime with the Oxfordshire and Buckinghamshire Light Infantry provided a few occasions of entomological pleasure. From his defensive position on the Isle of Wight coast at the beginning of the war he enjoyed watching Glanville Fritillaries flying past. Later in India he found time to watch and collect butterflies, though in Burma, where he was a senior liaison officer with the rank of major, the fighting precluded much serious natural history, though at times it no doubt provided a necessary and welcome diversion. He was made MBE for his official history of the Arakan campaign of the 25th Indian Division in which he served.

After the war he returned to teaching in Oxford, and, in 1947, joined the Amateur Entomologists' Society, thus giving more focus to his renewal of interest. This must have encouraged him to produce the second supplement to the list of microlepidoptera, published in 1948 by the Ashmolean Natural History Society to which he no doubt also belonged. It is clear that, like so many other lepidopterists, he had yet to take up the study of the smaller moths. In 1951, his first contribution to the *Bulletin* of the AES was on the subject of common wing-patterns in otherwise divergent tropical butterflies, based on his experience in India. Another contribution, in May 1965, was on the subject of the communal roosting habits of butterflies, clustering together in a disused wartime pillbox. However, through his membership of the AES and stimulated by the notes on the smaller moths, which from 1963 were illustrated by fine line drawings from the pen of Eric Bradford, a keen interest in microlepidoptera was aroused. A note on parasitisation, published in the *Entomologist's Record* in 1966, refers to his searching for mines as early as 1960, but these were of the clearwing *Synanthedon andrenaeformis* in a wayfaring tree. However, their discovery undoubtedly sparked his

fascination in the leaf – and stem-mining Lepidoptera of micros as well as macros, as in the same account he refers to his searches for a nepticulid species which mined beech leaves.

He had retired from school-teaching in 1957 and spent a number of years living with his sister Margery in Bristol while working as an examiner for the London University Examinations Board and as a part-time selector for the RAF. In 1964 he moved permanently to Saffron Walden where his elderly mother and aunt lived, and cared for them until their deaths in 1972.

In 1965, Maitland Emmet had joined the South London Entomological and Natural History Society, a body to which many leading entomologists, both professional and amateur belonged. The following year, for the first time he mounted an exhibit at its annual exhibition, and two months previously he had published in the AES *Bulletin* collecting notes for August 1966 on “the smaller moths”, the first of many he was to contribute. He had just succeeded Mr D. Ollevant, whose previous series of notes had contained some serious editorial errors, the captions to illustrations being transposed on more than one occasion, which Emmet felt compelled to bring to light. Using courteous, well-chosen language, which nevertheless did not attempt to conceal his irritation, he wrote, “Mr E.S. Bradford must be a very aggrieved man. After executing his drawings of microlepidoptera with the greatest skill and producing one of the best features of the *Bulletin*, he seems to be dogged with error.” He added, “It is one’s duty to correct such errors. However I write only in part to find fault: doing so also gives me the opportunity to pay my tribute to Mr Bradford’s fine work.” When invited to take over, he acknowledged that he “could not refuse without meeting the opprobrium due to the destructive critic”. “I had entrapped myself”, he added. The following year, Maitland became ever more active as a microlepidopterist. At the next South London annual exhibition he displayed an impressive collection of microlepidoptera collected from the south and east of England and from Galway in Ireland. He also showed a *Mompha conturbatella* as a new species for Suffolk. During the next couple of years he led field meetings to Stoke Row, Oxfordshire, Trottscliffe, Kent, and Portland, Dorset. It was said of him that he and Stanley Howard Wakely, a microlepidopterist whom he much admired, would “often hunt in couples”. In his obituary of Wakely, written jointly in 1976 with Michael Chalmers-Hunt, he described him as a pre-eminent field worker, and there can be no doubt that his fieldcraft was passed on to his distinguished younger disciple.

He was a leading member of a number of natural history societies, serving as president of the British Entomological & Natural History Society (formerly the South London) in 1971; of the AES in 1975; and of the Essex Field Club (1985-1986). He was on the council of the Royal Entomological Society from 1978-81, being vice-president for the last two years, and was made honorary fellow in 1984. He was elected fellow of the Linnean Society in 1973.

As a scholar, in addition to being a field-worker, Maitland Emmet delved deeply into the literature. He revered Henry Tibbats Stainton, arguably the greatest British microlepidopterist of all – of whom he published an appreciation in 1992 in the *Entomologist's Gazette* on the occasion of the centenary of his death. Maitland also much admired Edward Meyrick, a classicist and schoolmaster like himself, to whose *Revised Handbook of British Lepidoptera* he would refer frequently.

In 1975, John Heath founded the ongoing series *The Moths and Butterflies of Great Britain and Ireland*, inviting Maitland Emmet to become an associate editor, a role he relished. He was also asked to contribute the account of the Nepticulidae, based on his researches into these tiny leaf-mining moths to which he had been devoting much of his spare time. He was to describe eighty per cent of the species anew, not simply copying earlier descriptions as is so often done in works of this kind. Moreover, he reared and described nearly ninety per cent of the larvae from living specimens as well as their mines from freshly gathered material. This work led to his recognition by the Zoological Society of London with the award of the Stamford Raffles medal for his scientific work as an amateur.

In 1978, Emmet became joint editor with John Heath of the series on Moths and Butterflies (*MBGBI*). On Heath's death in 1987, he took over as sole editor, meticulously editing three further volumes: 7(2) (1991), 3 (1996) and lastly Volume 4, which he had just completed at the time of his death, ably supported by John Langmaid as co-editor, and which is now being prepared for press. Covering the families from Oecophoridae to Scythrididae, it contains contributions from fifteen expert lepidopterists in addition to his own, of which the texts have been edited with his customary rigour as well as disarming charm – sometimes necessary when his red pen on a returned typescript seemed to dominate the page! The scholar and schoolmaster in him were with him to the end. It is a sadness for all who have contributed to it that he has not lived to see it published, but his memorial is his massive contribution to the work. Apart from the Nepticulidae, he was sole or co-author of two other small families in Volume 1 and of five families in Volume 2, including the Gracillariidae, which he wrote with Ian Watkinson. In Volume 3, he presented yet another major contribution: this time on the Coleophoridae – a masterpiece of accurate and descriptive writing in which he described the case-making habits of the larvae, the majority of which he wrote up from his personal observations.

Emmet was author of *The smaller moths of Essex* (1981); co-author with Geoff Pyman of *The larger moths and butterflies of Essex* (1985); and of *The scientific names of the British Lepidoptera – their history and meaning* (1991). This masterly work combined his knowledge of the classics with his profound interest in puzzling out answers to problems – in this case the often almost intractable explanations for the scientific names chosen by their

nomenclators for new species of Lepidoptera. The novelist A. S. Byatt awarded it the accolade of her “Christmas Book of the Year”, and it has already become a classic. Maitland Emmet’s contribution to the “butterfly volume”, *MBGBI* 7(1) (1989), apart from accounts of some of the butterflies based on his own knowledge and researches, is a fascinating chapter on “The vernacular names and early history of British butterflies”.

In addition to this voluminous editorial work and original writing, Maitland Emmet found time to maintain maps of the distribution of the British microlepidoptera, the material derived from personal records, from records in the literature which he always scanned methodically, from correspondence, and from excursions often with groups of regionally based lepidopterists who took him to favoured areas. He was frequently consulted on local faunal guides and wrote introductions to several of them. As if this was not enough, he was wont to relax over *The Times*, completing its crossword puzzle in about 20 minutes – a feat he maintained into his 90s.

The thread that runs through Maitland’s entomological researches is his fascination in the life histories of Lepidoptera. He was Britain’s leading expert on larval leaf-mines which he would collect and rear to the adult stages, thus gaining invaluable and often hitherto unknown information. His special contribution of a microlepidoptera chapter to the English translation of Ekkehard Friedrich’s *Breeding Butterflies and Moths*, which he edited, summarised his knowledge and is a valuable introduction to the subject. The chart in the second part of Volume 7 of the *Moths and Butterflies* is a condensed synthesis of what is known of the life histories of the whole of the British Lepidoptera – some 2500 species – which he compiled single-handed. He also revised and edited two editions of *A field guide to the smaller British Lepidoptera* ([1979] and 1988) – often termed the microlepidopterists’ vademecum.

He maintained a specimen collection, including a herbarium of leaf-mines, but his attitude to collecting was clear. It should not be for its own sake but for greater understanding of the species themselves. One’s main interests should be in their life histories, distribution and conservation.

Maitland remained unmarried until late middle age. His mother, at whose house in Saffron Walden he lived from 1964, died in 1972 when he was aged 64. Later that year he married Katie Tinne, the widow of a great Oxford rowing friend with whose family in Galway he used to stay in the 1960s and ’70s, and from where he recorded many species of micro. Katie was to prove not only a loyal and devoted wife; she was also a constant companion and eagle-eyed help in his search for leaf-mines, especially during the years he was preparing his contributions to *MBGBI*. He rarely went anywhere without her. When she died in 1993, after 21 years of very happy marriage, he was heartbroken.

Maitland Emmet was a tall, well-built man with a great sense of humour. He enjoyed life to the full and nothing gave him more pleasure after a day in

the field than a pint or two of beer at a nearby pub with his friends. The hospitality provided by Maitland and Katie, particularly his bumpers of sherry, was legendary. Their knockabout verbal banter was a source of astonishment not to say mystification to those who had not met them before but it concealed deep affection. As his publisher, I myself enjoyed my many visits to Labrey Cottage over the years as well as his stays at our home where stimulating conversation was lubricated with generous amounts of alcohol. His capacity was truly phenomenal but his brain remained unclouded! Much work was done in the most congenial possible way. We will all miss Maitland greatly. Perhaps his epitaph should be, in the words of Virgil: *Felix qui potuit rerum cognoscere causas* (Happy is he who has been able to understand the causes of things).

Basil Harley
19 March 2001

Juniper Carpet *Thera juniperata* (L.)(Lep.: Geometridae) in Juniper Valley, Aston Upthorpe, Oxfordshire

I am pleased to report that Ron Louch and I recorded a fully-grown caterpillar of the Juniper Carpet moth during a visit we made to Juniper Valley, Aston Upthorpe, on 7 September 2000. This is the first time that Ron and I have visited the site together since the late 1970s, when we made a number of visits at different times of the year and recorded larvae of the Juniper Carpet and other wildlife interest. It is good to be able to confirm that the species is still present in this new millennium. Ron informs me that he also noted larvae in 1998. The site is a chalk valley with many bushes of wild Juniper *Juniperus communis*. We beat just a single Juniper bush and obtained the distinctive larva, with its red side-stripes, almost immediately. The larva was filmed on video before being returned to the bush. Formerly considered Nationally Notable, the Juniper Carpet is now widely established on cultivated junipers in gardens (see Waring, 1992. On the current status of the Juniper Carpet moth *Thera juniperata*. (Lep: Geometridae). *Ent. Rec.* **104**: 143-148), but records from native Juniper sites remain valuable records of conservation interest. I believe the site was one of those monitored for juniper-dependent insects by Lena Ward (1977. The conservation of juniper: the fauna of foodplant island sites in southern England. *J. Applied Ecol.* **14**: 121-135), but am not clear how much invertebrate recording has taken place there recently. Other noteworthy records from this visit include a Clouded Yellow butterfly *Colias croceus*, in what proved to be a good season for this migrant, and a pair of Buzzards *Buteo buteo* which appeared to be resident.—PAUL WARING, 1366 Lincoln Road, Werrington, Peterborough, PE4 6LS. (E-mail: paul_waring@btinternet.com)

Lepidoptera new to Somerset in 2000

Two species of moth were recorded as new to the two vice-counties of Somerset during 2000, as follows:

Phyllonorycter comparella (Dup.) (Gracillariidae) – leaf mines on *Populus nigra* at The Perch, Cheddar (grid reference ST4455; VC 6) on 4.xi.2000.

Crambus hamella (Thunb.) (Pyrilidae) – adult at m.v. light in Wells (ST 5645; VC 6) on 25.viii.2000 by Andrew Duff.

In addition, the following two species of Nepticulidae were recorded as new to North Somerset (VC 6) in the same year:

Stigmella samiatella (Zell.) – vacated leaf mines on *Castanea sativa* at Berridge (ST 7434) on 8.x.2000. Mines were later found to be quite widespread in the woods on the Somerset/Wiltshire border.

Stigmella nylandriella (Tengst.) – leaf mine on *Sorbus aucuparia* at Beacon Hill Wood (ST 6346) on 1.viii.2000.

I would like to thank Andrew Duff for permission to publish his record, John Robbins for checking the identity of *P. comparella* and John Langmaid and Tony Davis for confirming that the species are new to Somerset or North Somerset.– Martin J. Ellis, 14, Great Ostry, Shepton Mallet, Somerset BA4 5TT (E-mail: mjellis@tesco.net).

Satin Beauty *Deileptenia ribeata* (Clerck) (Lep.: Geometridae) new to north-east Scotland

Deileptenia ribeata (Clerck), a predominantly southern species, was recorded as far north as south-west Scotland in the first edition of Skinner (1984, *Colour Identification Guide to Moths of the British Isles*. Viking). In the second edition (1998), Perthshire is added to its distribution. We can now report a considerable extension of the range of this species – two specimens were taken at the Rothamsted trap near Monymusk in south Aberdeenshire (VC 92: grid reference NJ 6619) on 3.viii and 10.ix.1999. The trap is operated by Jon and Marion Bailey, and the catch is identified by RMP. Three specimens were taken at m.v. light near Banchory, Kincardineshire (VC 91: NO 6796) by CWNH during the period 24.vii to 4.viii.1999. Further specimens were taken at both sites in 2000, one from Banchory on 10.viii.2000, and five at Monymusk between 10.viii and 26.viii.2000. This species was not known from north-east Scotland prior to these records, but appears now to be established in this area.– ROBERT M. PALMER, Greenburn Cottage, Bucksburn, Aberdeen AB21 9UA (E-mail: bob@bobpalmer.freeseve.co.uk) and CEDRIC W. N. HOLMES, 9 Pinewood, Inchmarlo, Banchory, Kincardineshire AB31 4AF.
(E-mail: c-holmes@inchmarlo.freeseve.co.uk)

Hazards of butterfly collecting: *Ornipholidotos larseni* – Nigeria, 1967/69

Ornipholidotos larseni Stempffer, 1969 is one of my favourite butterflies. I caught it in the lovely Ilaro Forest in western Nigeria in 1967. The forest no longer remains. Corruption during the Shehu Shagari regime allowed it to be clear-felled. Every single stick, as they say in forestry, actually had to pass through the local Forestry Commission Office compound; every stick went out illegally. I re-visited in 1979 – nothing was left, just a desert of deep red laterite with patches of elephant grass, a very sad sight indeed.

O. larseni was the first butterfly named after me. I was more proud of this than I probably should have been, since it is often easier in Africa to find a new butterfly than to identify it as being new. The species is not very common, but has been found also in Côte d'Ivoire, Ghana, and Cameroon. I have the vicarious pleasure of catching it from time to time in Ghana.

Ornipholidotos is a large genus (forty species and more to come) belonging to the very special Lipteninae subfamily of the Lycaenidae. Most species are rather small and characterised by having the wings semi-transparent white with a dark costa and wing margins, usually with a black spot in the cell of the hindwings. They can be confused with no other African butterflies. Most species cannot be identified with certainty without microscopic examination of the genitalia. These are asymmetrical and so bizarre that their various parts cannot really be assigned to the normal parts of butterfly genitalia. When studying them in a collection, it is possible to make an intelligent guess as to which species is before you and the genitalia might confirm your guess; but then they might not, and a new species might turn up. This makes microscopy exciting!

Ornipholidotos are typical of the Lipteninae, and it is worth giving some information about this fascinating subfamily. They are found in the West African and equatorial rainforests. Only two species occur in eastern or southern Africa, east of the Rift Valley. Like most of the Lipteninae they are only found on trees that carry the large beehive-like nests of *Crematogaster* ants. When in an African rainforest you should always look up and whenever you see an ant nest, it is worth poking about within a narrow radius of the tree. The caterpillars are very unlike those of other butterflies, looking very much like lymantriid moths, with their characteristic hair bristles; without prior knowledge you would never recognise a liptenine larva as a butterfly. Since the first find of a larva about ninety years ago, they were thought to feed on lichens, but careful study by Ivan Bampton and Colin Congdon has recently shown that they actually browse on blue-green algae that live on the lichens. The larvae of nearly all Lipteninae always feed in the runs where the ants commute to the ground, but there is no observable symbiosis; they do not have the honey glands of most Lycaenidae. However, though it has not been tested, they must be producing some appeasement pheromone to allow them to live with the ants, because they attack anything else – just try putting a finger on the tree-trunk!

Most Lipteninae stay at the tree of their birth; in Nigeria I found a very rare species on the same tree where I last saw it ten years earlier. *Eresiomera cornesi* Stempffer was collected on four or five occasions on a single tree in the Gambari Forest near Ibadan in Nigeria during the 1960s; the tree was cut down and the species has not been seen since 1969. However, despite their sedentary behaviour, they must have some mobility. Many rare and highly localised species are found all the way from Sierra Leone to Uganda and Kenya with identical genitalia. This might change in the future. Deforestation in most of Africa is progressing at a deplorable rate; there is probably only 15% of the original forest left in West Africa (much of it degraded), and it is becoming so fragmented that gene-flow is cut off. We may see isolated populations beginning to diverge and speciate, an important issue for future study, and an important reason for building up reference collections today.

But to return to *Ornipholidotos larseni*. Michel Libert, in France, studying his material from Cameroon, realised that the genus needed to be split in two, based on some rather esoteric, but deeply significant, differences in the front legs. He asked for my agreement to call the new genus *Torbenia*, to which I acceded, not being troubled by false modesty. It was then found that *O. larseni* belonged in the new genus. So I now have what must be the most immodest butterfly in the world: *Torbenia larseni*!—TORBEN B. LARSEN, Bangladesh, World Bank, 1818 H Street N.W., Washington D.C., 20433, USA. (E-mail: Torbenlarsen@compuserve.com)

***Sorhagenia janiszewskae* Riedl (Lep.: Cosmopterigidae) feeding on *Rhamnus cathartica* and new to Lancashire**

During 1999, on a visit to Gait Barrows National Nature Reserve in north Lancashire (VC 60: grid reference SD 4777), SP came across distinctive signs of larval feeding in the new growth of twigs on a large Buckthorn *Rhamnus cathartica*. The leaf growth was withered on the tips of several twigs and was reminiscent of damage done to an Alder Buckthorn *Frangula alnus*, shown to SP by Maitland Emmet and JRL on a visit to a site in Surrey several years previously. The genus involved was likely to be *Sorhagenia*, but which of the three possible species was responsible was not clear. Only one of the twigs was removed, as SP considered himself unlikely to be successful in breeding the moth through, and this proved correct.

RMP and JRL had subsequently visited Gait Barrows on the 21 June 2000 and had found wilted tips on a different Buckthorn tree some distance from the first. Furthermore, on the following day, larval signs had been found on *Frangula alnus* at a site some miles away, at Roudsea Wood National Nature Reserve (VC 69: SD 3382). With these possible larval sightings in mind, during a subsequent visit to the Gait Barrows site by SP and RMP, on 27 July 2000, we visited the original tree and idly tapped it to see if any moths appeared. To our delight, and astonishment, two small moths immediately

detached themselves from the leaves and were easily netted. Initial observation with a hand lens indicated that they could well be a *Sorhagenia* species.

The problem now was to ascertain the species involved. The feeding method and the time of year that the larvae had been observed indicated that *Sorhagenia janiszewskae* Riedl was the most likely candidate. However, a check in Emmet (1988. *A Field Guide to the Smaller British Lepidoptera*), gave *Frangula* as the only listed foodplant, although *Rhamnus* is given as an occasional additional foodplant in *The Moths and Butterflies of Great Britain and Ireland* Vol. 4 (in preparation). At the request of JRL, RMP prepared a genitalia slide which was subsequently checked by John and found to be a female *Sorhagenia janiszewskae*.

Data maps initially produced by Maitland Emmet and now held and recently updated by JRL showed this to be a species of southern English counties with the most northerly records known, prior to our findings, being from Berkshire and South Essex. Our data suggest a considerable extension of the range of this species in Britain, and indicate that it would be well worth searching for in suitable parts of the Midlands and southern parts of north-west England.

We would like to thank English Nature, specifically Rob Petley-Jones, for permission to study Lepidoptera on the Gait Barrows and Roudsea Wood reserves.— STEPHEN PALMER, 137 Lightfoot Lane, Fulwood, Preston, Lancashire PR4 0AH (E-mail: Palmer01@genie.co.uk), ROBERT M. PALMER, Greenburn Cottage, Bucksburn, Aberdeen AB21 9UA (E-mail: bob@bobpalmer.freeseve.co.uk) and JOHN R. LANGMAID, Wilverley, 1 Dorrita Close, Southsea, Hampshire PO4 0NY (E-mail: john@langmaidj.freeseve.co.uk).

A further late record of the Mother of Pearl *Pleuroptya ruralis* (Scop.) (Lep.: Pyralidae)

We read with interest the note in the last issue of this journal (*antea*: 2), by Tony Steel concerning a late record of the Mother of Pearl *Pleuroptya ruralis* caught on 21 October 2000 in Kent. This brought to mind a similar sighting by us last year. From 30 September until 7 October, we stayed on the Lizard Peninsula in Cornwall at Higher Predannack above Mullion Cove. The week saw many good migrants gracing our traps including large numbers of White-speck *Mythimna unipuncta*, Delicate *Mythimna vitellina* and a single *Palpita unionalis*. On the morning of the 5 October we were very surprised to find a pristine Mother of Pearl *Pleuroptya ruralis* in our traps. Given the number of migrants recorded during the week it seems likely that the individual concerned was a migrant moth. — JON CLIFTON, Kestrel Cottage, Station Road, Hindolveston, Norfolk NR20 5DE (E-mail: jon.clifton@btinternet.com) and ADRIAN WANDER, 54A Hartford Road, Davenham, Northwich, Cheshire CW9 8JF.

A further late occurrence of the Mother-of-Pearl moth *Pleuroptya ruralis* (Scop.) (Lep.: Pyralidae) in the Isle of Wight

With reference to Tony Steele's note of a record of *Pleuroptya ruralis* on 21 October at his Robinson trap in his garden in Kent (*antea*: 2), I should like to mention that I also caught this species at light in my garden here at Freshwater, Isle of Wight, on 19 October 1994 (see *Ent. Rec.* **107**: 172). I think that these records must relate to a partial second brood, probably induced by warmer seasons, which this country has experienced in the last two decades.— S. A. KNILL-JONES, Roundstone, 2 School Green Road, Freshwater, Isle of Wight PO40 9AL.

Notable Cornish Coleoptera

Dr R. Colin Welch, in his informative article referring to mine on the above topic (*antea*: 27-28), questions my use of the term “notable”. I think that most readers would understand this in the obvious sense that I intended, i.e., worthy of note. The narrower technical usage recently established, legitimate enough for its purpose, need not and should not affect its everyday sense. As the greater includes the lesser, even a very rare, endangered or *Red Data Book* category 1 species must be notable on any common sense basis – possibly *very* notable.

Secondly, I make no apology for having included a very few supposedly or questionably extinct species or, indeed, others of doubtful status. What may be doubtful now may not always be; and in entomology I prefer to regard “extinct” as shorthand for “presumed, or apparently, extinct” as a general rule. Such records can in any case have a historical importance or interest.

Incidentally, I quite agree with Dr Welch that *Leiodes picea* (Panz.) must have been a misidentification, like the Kent specimen to which he refers.— A. A. ALLEN, 49 Montcalm Road, Charlton, London SE7 8QG.

EDITORIAL COMMENT

Without wishing to interfere in any way with the freedom of authors to express their opinion on the notability or otherwise of a species, I have decided that in order to avoid confusion, a ruling is required. Therefore, where the formal designation of “Nationally Notable” is intended (species recorded in, or expected to be present in, between 16 and 100 of the ten-kilometre squares of the Ordnance Survey's national Grid in Great Britain, and formally designated as such in the appropriate literature), the first mention of the status, and in all situations where the word “notable” would otherwise begin a sentence, the designation should be written in full — i.e., “Nationally Notable” (with initial capitals) and not “notable”. At subsequent mentions, the word should commence with a capital “N”. Where the word is used in the more general sense as a part of normal English language, and no formal designation is implied, the word should be entirely in lower case letters unless it forms the first word of a sentence.— EDITOR

Two new localities for *Hemicoelus nitidus* (Herbst) (Col.: Anobiidae)

Hemicoelus nitidus was first reported in Britain from Suffolk in 1980 Mendel (1982. *Ent. mon. Mag.* **118**: 253-254). Subsequently, it has been recorded from Windsor Great Park by J. Owen (1990. *Ent. Rec.* **102**: 274) and again in Suffolk more recently by D. Nash (2000. *Ent. Rec.* **112**: 177).

In the course of re-identifying British Anobiidae in the collection of the National Museum & Gallery, Cardiff, I discovered two specimens of this species standing as *H. fulvicornis* (Sturm). There is a specimen in the collection of the late B. J. MacNulty labelled Danbury, 18.vii.1964. I assume that Danbury is the village in South Essex, since the MacNulty collection contains much material collected in the counties around London. This appears to be the first Essex record and the earliest collected specimen.

There is also a male specimen collected by the late Joan Morgan in the Bangor University Collection, which was recently acquired by the museum. This specimen was collected at Cavenham Heath, West Suffolk, 31.vii.1982. Unfortunately there is no further information relating to the specimens. It is quite likely that other unrecognised specimens may exist in collections.—BRIAN LEVEY, Department of Biodiversity & Systematic Biology, National Museums & Galleries of Wales, Cathays Park, Cardiff CF1 3NP.

***Dorytomus ictor* (Herbst) (Coleoptera: Curculionidae) widespread in the London area**

Since first finding *Dorytomus ictor* on Hampstead Heath (Jones, 1984. *Proc. Trans. Br. Ent. Nat. Hist. Soc.* **17**: 91), this beetle has turned up in London with surprising regularity, virtually everywhere that its host tree occurs. Formerly called *D. validirostris* (Gyllenhal) by British entomologists, this characteristic weevil is usually reported as being associated with poplar, more specifically Black Poplar. Despite the discussion over the taxonomy of poplars, it seems that the beetle is not as fussy as botanists and occurs on the slightly disparaged Italian hybrid Black Poplar cultivar, *Populus x canadensis* "Serotina", seemingly widely planted in London (and elsewhere in the British Isles) during at least the last 200 years.

The beetle is accorded "Nationally Notable B" status by Hyman & Parsons (1992. *A review of the scarce and threatened Coleoptera of Great Britain*, Part 1), who also report that adults have only been found in June, July and November, and that the species is difficult to identify. In fact, the beetle can be most easily found in the autumn and winter months and is very distinctive. The easiest way to find it is to prise off small pieces of thick gnarled bark near the base of the trunk, to look for over-wintering specimens. The beetle's characteristic covering of mottled scales gives it remarkable camouflage against the lichen-mottled bark, but can usually be found on large trees. Often, dead specimens or remains can also be found this way during the summer months. Its broad and short rostrum and stout legs make *Dorytomus ictor* one of the easiest species in the genus to identify.

I have now found this beetle in all four of the vice-counties of central London. My records are as follows:

Hampstead Heath, TQ 265865, VC 21, Middlesex, three found under bark of black poplar tree, 16.ii.1984; River Lee, Stratford Marsh, TQ 374840, VC 18, South Essex, one found under loose bark of large black poplar, iii.1995; One-Tree hill, Honor Oak, TQ 354742, VC 17, Surrey, many under pieces of loose bark or large black poplar trees, 25.viii.1995 and xii.1995; Peckham Rye Park, TQ 348752, VC 17, Surrey, several under loose bark of large black poplar tree, ii.1996; New Cross, Railway Cutting, TQ 363763, VC 17, Surrey, several swept and many others found dead under loose bark of old black poplar tree, 27.iii.1997 and 30.iv.1997; Buckingham Palace Gardens, Westminster, VC 21, Middlesex, several by sweeping under large black poplar tree on eastern edge of lake, 15.vi.1998; Morden Cemetery, TQ 2367, VC 17, Surrey, several found by sweeping under a large black poplar tree, 10.vi.1998 and 15.vii.1998; Beddington Corner, TQ 2866, VC 17, Surrey, several by beating black poplar trees, 21.v.1998; Downham Woodland Walk, TQ 397723, VC 16, West Kent, several under dead bark of large black poplar tree 5.v.1999; Sudbury Town, TQ 176844, VC 21, Middlesex, several under loose sycamore bark, 18.x.1999, (there were some Lombardy poplars nearby which may have been the true host trees); Heron Island, Battersea Park, TQ 281770, VC 17, Surrey, one found by sweeping, 6.vii.2000.— RICHARD A. JONES, 135 Friern Road, East Dulwich, London SE22 0AZ (E-mail: bugmanjones@hotmail.com).

***Laricobius erichsoni* Rosenhauer (Col.: Derodontidae) from Aberdeenshire**

Peacock (1993. Adults and larvae of hide, larder and carpet beetles and their relatives (Coleoptera: Dermestidae) and of Derodontid Beetles (Coleoptera: Derodontidae). *Handbk. Ident. Br. Insects* 5(3)), lists the localities from which *Laricobius erichsoni* has been recorded since its original discovery in Great Britain in 1971. Further records from Herefordshire and Shropshire are noted by Alexander (1999. *Laricobius erichsoni* Rosehauer (Derodontidae) in Herefordshire and Shropshire. *Coleopterist* 8(1): 37).

I found two specimens of this beetle in a Malaise trap situated in farmland at Duncanstone in Aberdeenshire (grid reference NJ 5626) on 30.iv.1999, and a few days later a third specimen, partially disintegrated, in a puddle of water in a wheelbarrow some 200 metres distant. These captures coincided with an unseasonable spell of warm weather and I presumed that they derived from a spring dispersal flight. The beetle and its larval stages are predators of woolly aphids on conifers and there are extensive mixed conifer plantations in the area, although the nearest of these is around three kilometres away. However, on 30.ix.1999 I found another specimen in the Malaise trap and in April of 2000 two more individuals were captured, one in

a water butt and the other on a fence post. These were close to a small stand of young Larch *Larix decidua*. A careful search of the Larch revealed no further specimens nor have I found any in the neighbouring coniferous woodlands.

In Scotland this beetle has been found mainly in the lowlands although Lyszkowski (1987. Seven species of Coleoptera apparently unrecorded from Scotland. *Entomologist's mon. Mag.* **123**: 250), discovered it in West Inverness in 1984.

It is likely from my records that a substantial population probably exists in North Aberdeenshire. ARTHUR W. EWING, Wester Duncanstone, Inch, Aberdeenshire AB52 6YX (E-mail : arthur-ewing@beeb.net).

An old record of *Melandrya barbata* (Fabr.) (Col.: Melandryidae) from North Hampshire

British records of the saproxylic beetle *Melandrya barbata* are very few, and this species is categorised as *Red Data Book* category 1 (Endangered) in Hyman & Parsons (1992. *A review of the scarce and threatened Coleoptera of Great Britain*, U.K. Nature Conservation 3. JNCC). The only certain British records are from the New Forest, South Hampshire and Chiddingfold, Surrey (Allen, 1972, *Ent. mon. Mag.* **108**: 172). As a result of examining material in the Tomlin collection at the National Museum of Wales, Cardiff, two specimens of this species were found.

One specimen is labelled Rhinefield, New Forest, June 1896, Jackson. The other specimen is labelled Stratfield Turgis, 1914, J. Coventry. This locality is in North Hampshire very close to Stratfield Saye Park and other well wooded areas.— BRIAN LEVEY, Department of Biodiversity & Systematic Biology, National Museums & Galleries of Wales, Cathays Park, Cardiff CF1 3NP.

Moths on buses

Working in the passenger transport business, I often find moths on buses whilst servicing the vehicles at night. This has caused a dilemma for submitting my records! Do I record the bus garage as the locality, or look to see which route the vehicle was on during the day and choose a point along that route? Any help on this matter would be appreciated; at present, I am ignoring any moths actually found on the buses no matter how interesting they are.

The garage in question is at Bexleyheath, in north-western Kent at grid reference TQ 497757. The exterior lights around the garage are a mixture of sodium, fluorescent and halogen types and have provided some good records. Some of the most interesting during 2000 have been the Maiden's Blush *Cyclophora punctaria*, the Small Blood-vein *Scopula imitaria*, the Least Carpet *Idaea rusticata*, the Large Ranunculus *Polymixis flavicincta*, the Buttoned Snout *Hypena rostralis* and Leopard Moth *Zeuzera pyrina*.— TONY STEELE, 57 Westfield Road, Barnehurst, Kent DA7 6LR.

Sixth update of early emergences of moths at Selborne, Hampshire

These tables continues the comparisons (*Ent. Rec.* **113**: 29-30) between my earliest observations of non-hibernatory species in 1992-94 and those in 1995-97. The m.v. light was run here on just over 320 nights during each year of the survey. Of these next 111 species, 66 arrived earlier in 1995-97 than in 1992-1994. Thirty-seven species were seen in a month earlier than is usually expected.

These updates have so far related to the months January to June inclusive. They have covered 294 species, of which 198 (67.3%) arrived earlier in the second period, 1994-97. Fourteen other species (4.8%) shared the same date in both periods, whilst 82 species (27.9%) arrived later in the second period. These figures appear to be statistically significant.

It is interesting to note that of the total range of species, using data from either period, 105 (35.7%) were seen in a month earlier than is usually expected.

Species	1995-1997	1992-1994	MBGBI imago
1808 <i>Perizoma flavofasciata</i> (Thunb.)	5 Jun 97	25 May 93	Jun, Jul
1817 <i>Eupithecia pulchellata</i> <i>pulchellata</i> (Steph.)	5 Jun 97	7 Jun 94	May, Jun
1010 <i>Ditula angustiorana</i> (Haw.)	6 Jun 95	10 Jun 93	Jun, Jul
1084 <i>Hedya ochroleucana</i> (Fröl.)	6 Jun 97	15 Jun 93	Jun-Aug
1261 <i>Cydia pomonella</i> (Linn.)	6 Jun 96	27 May 92	Jun-Aug
1302 <i>Crambus perllella</i> (Scop.)	6 Jun 97	13 Jun 93	Jun-Aug
1334a <i>Scoparia basistrigalis</i> (Knaggs)	6 Jun 97	8 Jul 94	Jul, Aug
1654 <i>Tethea ocularis octogesimea</i> (Hb.)	6 Jun 95	9 Jun 93	May-Jul
1889 <i>Macaria notata</i> (Linn.)	6 Jun 96	30 May 93	Jun, Jul
1941 <i>Alcis repandata repandata</i> (Linn.)	6 Jun 95	23 Jun 93, 94	Jun, Jul
2088 <i>Agrotis clavis</i> (Hufn.)	6 Jun 97	3 Jun 93	Jun, Jul
2155 <i>Melanchra persicariae</i> (Linn.)	6 Jun 97	20 Jun 94	Jun-Aug
2305 <i>Euplexia lucipara</i> (Linn.)	6 Jun 95	6 Jun 93	Jun, Jul
140 <i>Nematopogon</i> <i>swammerdamella</i> (Linn.)	7 Jun 96	14 Jun 93	May, Jun
1275 <i>Dichrorampha</i> <i>flavidorsana</i> (Knaggs)	7 Jun 97	26 Jun 92	Jul, Aug
1690 <i>Scopula imitaria</i> (Hb.)	7 Jun 97	28 Jun 94	Jul, Aug
1707 <i>Idaea seriata</i> (Schr.)	7 Jun 95	26 May 92	Jul-Oct
1992 <i>Deilephila porcellus</i> (Linn.)	7 Jun 96	19 Jun 94	May, Jun

Species	1995-1997	1992-1994	MBGBI imago
2283 <i>Acronicta tridens</i> (D.&S.)	7 Jun 96	21 Jun 94	Jun, Jul
2381 <i>Hoplodrina alsines</i> (Brahm)	7 Jun 97	14 Jun 93	Jun-Aug
2489 <i>Zanclognatha tarsipennalis</i> (Treit.)	7 Jun 97	25 Jun 93, 94	Jun, Jul
1165 <i>Zeiraphera isertana</i> (Fabr.)	8 Jun 96	1 Jul 94	Jul-Sep
1344 <i>Eudonia mercurella</i> (Linn.)	8 Jun 97	6 Jun 93	Jun-Sep
2107 <i>Noctua pronuba</i> (Linn.)	8 Jun 97	31 May 92	Jun-Sep
2322 <i>Apamea lithoxylaea</i> (D.&S.)	8 Jun 97	23 Jun 92	Jun-Aug
2331 <i>Apamea unanimitis</i> (Hb.)	8 Jun 97	9 Jun 93	May-Jul
970 <i>Pandemis cerasana</i> (Hb.)	10 Jun 97	23 Jun 94	Jun-Aug
994 <i>Clepsis consimilana</i> (Hb.)	10 Jun 97	20 May 92	Jun-Sep
1033 <i>Tortrix viridana</i> (Linn.)	10 Jun 97	10 Jun 93	Jun-Aug
1079 <i>Piniphila bifasciana</i> (Haw.)	10 Jun 97	16 Jul 93	Jun, Jul
1083 <i>Hedya nubiferana</i> (Haw.)	10 Jun 97	29 May 93	Jun-Aug
1175 <i>Epiblema uddmanniana</i> (Linn.)	10 Jun 97	27 Jun 93	Jun-Aug
1177 <i>Epiblema rosaecolana</i> (Doubl.)	10 Jun 97	4 Jun 93	July
1470 <i>Euzophera pinguis</i> (Haw.)	10 Jun 97	18 Jun 93	Jul-Sep
1646 <i>Watsonalla binaria</i> (Hufn.)	10 Jun 97	14 Aug 93	May-Aug
1657 <i>Ochropacha duplaris</i> (Linn.)	10 Jun 97	28 Jun 94	Jun-Aug
1784 <i>Melanthia procellata</i> (D.&S.)	10 Jun 97	24 Jun 94	Jun-Aug
2163 <i>Melanchra pisi</i> (Linn.)	10 Jun 97	23 Jun 92	May-Jul
2340 <i>Oligia fasciuncula</i> (Haw.)	10 Jun 97	10 Jun 93	Jun, Jul
2477 <i>Hypena proboscidalis</i> (Linn.)	10 Jun 97	2 Jun 93	Jun-Aug
1002 <i>Lozotaenia forsterana</i> (Fabr.)	11 Jun 97	24 Jun 93, 94	Jun, Jul
1413 <i>Hypsopygia costalis</i> (Fabr.)	11 Jun 97	26 Jun 93	Apr, May Aug- Nov
1513 <i>Pterophorus pentadactyla</i> (Linn.)	11 Jun 97	20 Jun 92	Jun, Jul
1713 <i>Idaea aversata</i> (Linn.)	11 Jun 97	21 Jun 92	Jun-Aug
1961 <i>Campaea margaritata</i> (Linn.)	11 Jun 97	24 Jun 94	Jul, Aug
1980 <i>Smerinthus ocellata</i> (Linn.)	11 Jun 96	21 May 92	May-Jul
2128 <i>Xestia triangulum</i> (Hufn.)	11 Jun 97	9 Jun 93	Jun, Jul

Species	1995-1997	1992-1994	MBGBI imago
2284 <i>Acronicta psi</i> (Linn.)	11 Jun 97	14 Jun 93	Jun-Aug
1115 <i>Ancylis achatana</i> (D.&S.)	12 Jun 97	29 Jun 93	Jun-Aug
1332 <i>Scoparia subfusca</i> (Haw.)	12 Jun 97	22 May 94	Jun-Aug
1424 <i>Endotricha flammealis</i> (D.&S.)	12 Jun 97	3 Jul 93	Jun-Aug
1754 <i>Eulithis prunata</i> (Linn.)	12 Jun 97	10 Jun 93	Jul, Aug
1758 <i>Eulithis pyraliata</i> (D.&S.)	13 Jun 97	26 Jun 92	Jun-Aug
2323 <i>Apamea sublustris</i> (Esp.)	13 Jun 97	12 Jun 93	Jun-Jul
1020 <i>Cnephasia stephensiana</i> (Doubl.)	15 Jun 97	29 Jun 93	Jun-Aug
1673 <i>Hemistola chrysoprasaria</i> (Esp.)	15 Jun 97	24 Jun 92, 93	Jun-Aug
2164 <i>Hecatera bicolorata</i> (Hufn.)	15 Jun 95	23 Jun 94	Jun-Sep
1024 <i>Cnephasia incertana</i> (Treit.)	16 Jun 97	23 Jun 93	Jun, Jul
1063 <i>Celypha striana</i> (D.&S.)	16 Jun 97	2 Jun 93	Jun-Sep
977 <i>Archips podana</i> (Scop.)	17 Jun 97	6 Jun 93	Jun-Aug
1032 <i>Aleimma loeflingiana</i> (Linn.)	18 Jun 97	1 Jul 93, 94	Jun-Aug
1483 <i>Phycitodes binaevella</i> (Hb.)	18 Jun 97	26 Jun 93	Jul, Aug
1653 <i>Habrosyne pyritoides</i> (Hufn.)	18 Jun 97	9 Jun 93	Jun, Jul
1674 <i>Jodis lactearia</i> (Linn.)	18 Jun 97	6 Jun 93	Jun-Aug
1201 <i>Eucosma cana</i> (Haw.)	19 Jun 95	28 Jun 94	Jun-Aug
1425 <i>Galleria mellonella</i> (Linn.)	20 Jun 95	27 Jul 94	Jul-Oct
1842 <i>Eupithecia simpliciatana</i> (Haw.)	20 Jun 95	27 Jul 94	Jun-Aug
2474 <i>Rivula sericealis</i> (Scop.)	20 Jun 95	3 Jun 93	Jun, Jul
1205 <i>Spilonota ocellana</i> (D.&S.)	21 Jun 97	10 Jul 94	Jun-Aug
1304 <i>Agriphila straminella</i> (D.&S.)	21 Jun 95	23 Jun 92	Jul, Aug
2145 <i>Discestra trifolii</i> (Hufn.)	21 Jun 96	25 May 93	May, Jun
1667 <i>Comibaena bajularia</i> (D.&S.)	22 Jun 95	23 Jun 92	Jun, Jul
1708 <i>Idaea dimidiata</i> (Hufn.)	22 Jun 97	23 Jun 93	Jun-Aug
980 <i>Archips xylosteana</i> (Linn.)	23 Jun 97	1 Jul 94	Jul, Aug
1340 <i>Eudonia truncicolella</i> (Stt.)	23 Jun 97	11 Jul 94	Jul-Sep
1390 <i>Udea prunalis</i> (D.&S.)	23 Jun 97	13 Jun 93	Jun-Aug

Species	1995-1997	1992-1994	MBGBI imago
1669 <i>Hemithea aestivaria</i> (Hb.)	23 Jun 95	30 Jun 93	Jun, Jul
1702 <i>Idaea biselata</i> (Hufn.)	23 Jun 97	18 Jun 93	Jun-Aug
1922 <i>Ourapteryx sambucaria</i> (Linn.)	23 Jun 97	23 Jun 92	Jun, Jul
2077 <i>Nola cucullatella</i> (Linn.)	23 Jun 97	3 Jul 94	Jun, Jul
2193 <i>Mythimna ferrago</i> (Fabr.)	23 Jun 97	23 Jun 92	Jul, Aug
2327 <i>Apamea epomidion</i> (Haw.)	23 Jun 97	13 Jun 93	Jun, Jul
1361 <i>Pyrausta aurata</i> (Scop.)	24 Jun 95	15 Jun 92	May-Aug
2050 <i>Eilema lurideola</i> (Zinck.)	24 Jun 95	24 Jun 94	Jul-Aug
945 <i>Aethes cnicana</i> (Westw.)	25 Jun 97	10 Jul 94	Jun, Jul
972 <i>Pandemis heparana</i> (D.&S.)	25 Jun 95	23 Jun 93, 94	Jun-Aug
1893 <i>Macaria liturata</i> (Cl.)	25 Jun 96	25 May 93	Jun, Jul
2040 <i>Cybosia mesomella</i> (Linn.)	25 Jun 96	28 Jun 93	Jun, Jul
2150 <i>Polia nebulosa</i> (Hufn.)	25 Jun 97	29 Jun 93	Jun, Jul
2345 <i>Photodes minima</i> (Haw.)	25 Jun 95, 97	4 Jul 93	Jun-Aug
993 <i>Clepsis spectrana</i> (Treit.)	26 Jun 95	24 Jul 94	May-Sep
1910 <i>Apeira syringaria</i> (Linn.)	26 Jun 95	24 Jun 93	Jun, Jul
2198 <i>Mythimna impura</i> (Hb.)	26 Jun 95	30 Jun 93	Jun-Aug
2443 <i>Autographa jota</i> (Linn.)	26 Jun 95	22 Jun 93	Jun-Aug
818 <i>Scrobipalpa atriplicella</i> (F.v.R.)	27 Jun 96	7 Aug 94	Jul, Aug
1331 <i>Acentria ephemerella</i> (D.&S.)	27 Jun 95	1 Jul 93, 94	Jun-Sep
2330 <i>Apamea remissa</i> (Hb.)	27 Jun 95	13 Jun 94	Jun, Jul
642 <i>Batia unitella</i> (Hb.)	28 Jun 95	30 Jun 93	Jul, Aug
1035 <i>Acleris bergmanniana</i> (Linn.)	28 Jun 95	14 May 93	Jun-Aug
1405 <i>Pleuroptya ruralis</i> (Scop.)	28 Jun 95	5 Jun 93	Jul-Sep
1462 <i>Pempeliella dilutella</i> (D.&S.)	28 Jun 95	21 Jul 94	Jul, Aug
1791 <i>Philereme vetulata</i> (D.&S.)	28 Jun 95	4 Jul 93	July
2009 <i>Ptilodon cucullina</i> (D.&S.)	28 Jun 97	18 Jun 93	May-Jul
2109 <i>Noctua comes</i> (Hb.)	28 Jun 95	7 Jul 94	Jul-Sep
2110 <i>Noctua fimbriata</i> (Schreb.)	28 Jun 97	9 Aug 94	Aug, Sep

Species	1995-1997	1992-1994	MBGBI imago
981 <i>Archips rosana</i> (Linn.)	29 Jun 97	29 Jun 92	Jul-Sep
1048 <i>Acleris variegana</i> (D.&S.)	29 Jun 97	17 Jul 94	Jul-Nov
1962 <i>Hylaea fasciaria</i> (Linn.)	29 Jun 95	22 Jun 92	Jun-Aug
1452 <i>Phycita roborella</i> (D.&S.)	30 Jun 95	7 Jul 93	Jul-Sep
1803 <i>Perizoma alchemillata</i> (Linn.)	30 Jun 95	13 Jun 94	Jun, Jul
2030 <i>Euproctis similis</i> (Fuess.)	30 Jun 95	6 Jul 93, 94	Jul, Aug

– ALASDAIR ASTON, Wake's Cottage, Selborne, Hampshire GU34 3JH.

EDITORIAL NOTE: Alasdair Aston's regular summaries of species emerging earlier than expected provide a valuable ongoing record. For the benefit of new subscribers, earlier summaries may be read in this journal at **106**: 116; **107**: 4; **107**: 191; **110**: 54; **110**: 189; **111**: 134; **111**: 220; **111**: 286; **112**: 183-185 and *antea* 29-30.

Larvae of the Scarce Tissue *Rheumaptera cervinalis* (Scop.) (Lep.: Geometridae) at Charlton-on-Otmoor, Oxfordshire

In March 2000, I received a letter from Bruce Tremayne of the Old Rectory, Charlton-on-Otmoor, in response to an article (Waring, 2000. Conserving the Barberry Carpet moth. *British Wildlife* **11**(3): 175-182), about my searches for the endangered Barberry Carpet *Pareulype berberata*. He informed me of a hedgerow containing native Barberry *Berberis vulgaris*, the larval foodplant, which divides his property from the neighbouring field of rough grassland and he was happy for me to inspect it. I paid visits on 19 May 2000 to beat for adult moths and on 21 June and 6 September in 2000, beating the four clumps of Barberry, which I found in the hedge, for larvae. None was seen, and I saw no other Barberry elsewhere in the hedges round the field. However, the visit of 21 June 2000 (18.15 - 18.45 hours) produced six larvae of the Scarce Tissue *Rheumaptera cervinalis*, of various sizes up to two centimetres in length. These distinctive purple and yellow larvae were recorded and returned to the Barberry bushes. The Scarce Tissue was formerly considered a Nationally Notable species, but has since been found to occur much more widely, feeding as larvae on a number of the cultivated *Berberis* species now commonly planted in gardens, parks and along suburban and urban road verges. Waring (1992. Scarce Tissue moth *Rheumaptera cervinalis* (Lep.: Geometridae) and a search for the Barberry carpet moth, *Pareulype berberata* (Lep.: Geometridae) in Lincolnshire. *Ent. Rec.* **104**: 63-66), discussed the status of this moth and provided a national distribution map. Since that time I have found the larvae in many more places where I have beaten *Berberis*, both wild *B. vulgaris* and cultivated *B. thunbergi* and *B. ottawensis*. Beating for larvae is much the best way to find

the Scarce Tissue although the adult does come to light, particularly if the trap is placed by occupied bushes. It is unlikely that these particular bushes at Charlton-on-Otmoor have ever been inspected for larvae before.— PAUL WARING, 1366 Lincoln Road, Werrington, Peterborough, PE4 6LS (E-mail: paul_waring@btinternet.com).

SUBSCRIBER NOTICE

***Dipteron*: A new journal of interest to British entomologists**

Dipteron is a privately published journal concerned with Diptera, with an emphasis on hoverflies (Syrphidae). The subscription cost is based on printing costs; it is a non-profit journal produced by Dipterists and is concerned only with the dissemination of information on Diptera. We acknowledge that the price is relatively expensive, but hope that this might decrease as more people support us by subscribing. The prices for volumes so far available are:

Vol. 1 (1998) DM 13.50; Vol. 2 (1999) DM 48.00; Vol. 3 (2000) DM 54.00

With package and posting to Britain at 8 DM (for 1.150 Kg), volumes 1-3 will cost a total of DM 123.50, which is little less than £40.

These volumes contain 42 original publications on Diptera, most deal with hoverflies. Thirty-nine new taxa are described, including two new genera, one new subgenus and 31 new species.

The primary language of the journal is German (with English summaries), though a few papers are in English (with German summaries).

Volumes 1 and 2 are in the same format as the British journal *Dipterists Digest*; volume 3 has a reworked layout and a size nearer that of *Studia dipterologica*.

The preferred payment method is by Eurocheque, with the amount in German Marks, as there are no charges for us and only small charges for you. For all other cheques, charges of about 20% could appear. There is a small trick to avoid this: using three cheques each with an amount less than DM 50. German banknotes are acceptable, but entirely at your own risk. Sending British bank notes will incur charges of about 10% because Britain has not yet embraced the Euro. Please send money with order to – *Dipteron*, Dr Christian F. Kassebeer, Lehrstuhl für Ökologie, Zoologisches Institut, Universität Kiel, Olshausenstraße 40, D-24118 Kiel, Germany.

Visit the newly launched website for the
Entomologist's Record & Journal of Variation at:

<http://members.netscapeonline.co.uk/colinwplant/entrechome.html>

BOOK REVIEWS

Ladybirds of Surrey by **Roger D. Hawkins**. Surrey Wildlife Trust, 2000. A5, 136 pp., plus 16 pages of colour plates. Hardback, ISBN 0 9526065 5 0. £12, plus £2 UK postage, from the publishers at School Lane, Pirbright, Woking, Surrey GU24 0JN.

Ladybirds (Coleoptera, Coccinellidae), join Dragonflies (1995), Butterflies (1996), Larger moths (1997), Hoverflies (1998) and Grasshoppers and crickets (1999) as the sixth work in the series covering the flora and fauna of the county of Surrey. The author is a professional entomologist who has studied ladybirds in the county for over twenty years; during that time, in which he has obtained records from every tetrad of the county, he has managed to find 41 of the 42 British ladybird species, including two national rarities and two European species that have recently become established in Britain.

The use of technical jargon is avoided and the text is clear and concise. Useful chapters introduce the work, covering such topics as “What is a ladybird?”, “Ladybird life-history”, “Finding ladybirds”, “Identifying ladybirds”, “The names of ladybirds” and “Conservation” amongst others. Distribution maps are presented for all species found in Surrey, and it is pleasing to see that the entire of the Coccinellidae are covered – not just the ones with spots that we all refer to as “ladybirds”. The section concerned with distribution begins, under each separate species heading, with a summary of National Status, Number of Surrey tetrads for which there are records, Status in Surrey and Habitat; thereafter there is text, of varying length, discussing various aspects of ladybirds in the county and accompanying a map. The excellent colour plate section includes photographs of larvae as well as of adults and serves as a mini-identification guide in itself.

To quote Mike Majerus, in his Foreword to the book, “*Ladybirds of Surrey* is so much more than a set of distribution maps showing which ladybirds may be found where and on what in Surrey. In fact, the rest of the book is as pertinent to a ladybird observer in John o’Groats or Land’s End as it is to a naturalist in Epsom”. It is strongly recommended, both as a stand-alone purchase and as a part of the excellent ongoing series.

The distribution of the Ephemeroptera in Ireland by **Mary Kelly-Quinn and John J. Bracken**. *Occasional publication* number 5 of the Irish Biogeographical Society, 2000. A5, 224pp., perfect bound in wrapper. ISBN 0 9511514 4 4. Available from the Society at the National Museum of Ireland, Kildare Street, Dublin, Ireland. £10 (Sterling or Irish) inclusive of postage.

During 1995 and 1996, and funded by a Forbairt Basic Research award, the two authors undertook an investigation of the Irish mayfly fauna. Combining existing records with new data from an intensive field sampling programme, they provide detailed information in this work on the distribution and habitat preferences of Ephemeroptera in Ireland. Over 400 river and lake sites were sampled in the major catchments of the country covering a variety of habitat types. The work reduces the Irish Ephemeropteran fauna to 33 species from a previously supposed 36 and of these,

31 species have been verified by the authors during the two-year fieldwork programme. The total compares with 49 species occurring in Britain and 71 in Northern Europe. In excess of 1,500 records have been compiled. Eighteen species are common and abundant throughout Ireland today and a further eight species are shown to exhibit a more patchy distribution. An additional seven species are rarely encountered. An overview of the distribution of each species is presented in a series of maps, based on a ten-kilometre square grid. The contents of the data-base are presented in tabular form and occupy the second half of the work. This comprehensive guide maintains the highest standard of accuracy and represents an invaluable contribution to knowledge of the Irish fauna.

The Aurelian legacy: British butterflies and their collectors by **Michael A. Salmon**, with additional material by **Peter Marren and Basil Harley**. Harley Books, 2000. 275 x 210 mm., 432pp., including 42 colour and 162 black & white illustrations. Hardback, ISBN 0 946589 40 2. £30, available from Harley Books at Martins, Great Horkesley, Colchester, Essex CO6 4AH.

Collecting has played the major role in the accumulation of knowledge and understanding of British butterflies, and to some extent still does so. It is something of a surprise, therefore, that nobody has until now provided us with such an encyclopaedic tome concerned with the collectors themselves. From Thomas Moffet (1553-1604) to John Heath (1922-1987), here are the biographies of 101 of some of the most notable collectors of butterflies in British history, occupying 144 pages of this large and attractive book. In most cases, these are illustrated by a photograph or other type of portrait of the man (or the woman) in question.

However, this work contains far more than just this. The opening chapter, entitled "A short history of butterfly collecting in Britain", together with the subsequent chapter on "Weapons of the chase", together occupying some 68 pages, provide a fascinating insight into a bygone era. Yet, there is more. Thirty-five butterfly species of particular historical interest are discussed in depth from discovery to present day; there is a chapter concerned with Conservation and collecting in which the morality of butterfly collecting is discussed along with its effects, in a rational and unemotional manner. Appendix 1 lists the British and Irish butterflies together with their past and present common names whilst Appendix 2 is a chronological list of significant entomological events, such as the formation of entomological societies, the inception of entomological publications and other significant events. There are 42 pages of colour plates, several of which occupy full pages, and a further 162 containing black and white illustrations. These depict some of the superb paintings from the books by Moses Harris, F. W. Frohawk and others, as well as other topics, including the odd cartoon or two (I especially liked the "great moment" at the annual dinner of the Entomological Society, on page 49 – but if you want to know what I mean you will have to buy the book !

This is fascinating reading. Both the authors and the publishers are to be congratulated for producing a work of historical reference that will surely prove invaluable for entomological researchers well into the future. It is well worth every single penny of the very reasonable cover price and I commend it to all who have yet to experience the delight of opening its pages.

Checklist of the flora and fauna of Wicken Fen compiled and edited by **Laurie Friday and Basil Harley**. Harley Books, 2000. 244 x 172mm, 128pp., paperback. ISBN 0 946589 61 5. £12.50. Available from the publisher at Martins, Great Horkesley, Colchester, Essex CO6 4AH.

This work forms a companion to *Wicken Fen – the making of a wetland nature reserve*, also edited by Laurie Friday and published by Harley Books in 1997 (see review in *Ent. Rec.* **110**: 95-96). In that work, species lists were omitted on the grounds that they were so lengthy that they would have necessitated either the use of very small type or else the raising of the cover price to an unrealistic level. That work is priced at £37.50. In the present work, the briefest of introductions precedes 98 pages of species lists, providing one of the most comprehensive site lists available for any site in Britain.

To review the species content of the list seems churlish. Both authors have consulted widely to ensure that the lists are comprehensive, accurate and up to date in terms of nomenclature, and I have every confidence that they are so. Anyone who claims to have records that are omitted is surely likely to be guilty of not sending in his or her records in any event! It is a pity, on the other hand, that the year of the most recent record is not given. Although sources are noted at the start of each section, and from these the latest dates can be inferred in some cases (e.g., there appear to no records of *Oligochaetae* since a list published in 1932), the list is nevertheless an *all time* inventory, with no indication of which taxa are still present. Thus for the Neuroptera, which list I myself scrutinised for the authors, we are advised that records are taken from Lucas (1925 and 1928), Gambles & Kerrich (1932), Imms (1932) and C. W. Plant. Presumably, then, my own records are the only ones made since 1938. I know for a fact that not all of the 13 species listed are based on my records, but the list does not allow the reader to discern which are which; for all the reader knows there may only be a single species still present! The Lepidoptera list, on the other hand is rather better presented and it is clear that continued presence is implied unless an annotation indicates otherwise.

In spite of this one criticism, this work is a superb effort and the annotation of appropriate species with national status codes allows for a degree of interpretation. It has been well worth the lengthy wait. Those who already have the 1997 book will certainly wish to buy this list in order to complete the overall work; those who do not will nevertheless find the lists an inspiration as well as a valuable means of comparison with other sites and will doubtless be moved to purchase the first volume in order to set the lists into context.

Whip spiders (Chelicerata: Amblypygi): Their biology, morphology and systematics by **Peter Weygoldt**. Apollo Books, 2000. 164pp., 240 x 170mm., hard-bound. Hardback, ISBN 87 88757 46 3. DKK 320, exclusive of postage (Apollo Books will accept payment made by a cheque drawn on a UK bank account. At the March 2001 exchange rate, the price is in the order of £32 Sterling, plus postage). Available from Apollo Books, Kirkeby Sand 19, DK-5771 Stenstrup, Denmark.

Whip spiders, also known as tail-less scorpions, have been greatly neglected by scientists and naturalists alike until fairly recently. In contrast to spiders and scorpions, they are of no commercial, economic or medical importance and they are generally difficult to find because of their secretive, nocturnal habits. They are an old group of animals, dating back to the Carboniferous period and have been studied by the author since 1970. In this book he describes their morphology and systematics, their life

histories, their fascinating sensory biology, their complex mating dances and reproductive biology and their ecology and distribution.

Whip spiders inhabit the tropical and subtropical regions of the world, though a very few species are known from the temperate regions. In Europe, they appear to be confined to the Greek islands of Rhódos and Kós. Nevertheless, this invertebrate group is of great interest and this book summarises the bulk of present knowledge in a very readable form. It will be of interest to anyone with a broad-based interest in invertebrates in general.

The red mason bee: Taking the sting out of bee-keeping by Christopher O'Toole. Osmia Publications, 2000. A5, 34pp., including 8 pages of colour plates. ISBN 0 9539906 0 5. £3.95 from the publishers at 35 West Street, Banbury, Oxfordshire OX13 3HA.

Subtitled "A practical guide to managing *Osmia rufa* as a pollinator in gardens, allotments and orchards", this attractive booklet includes sections on *Osmia rufa* as a pollination pet, The natural history of the Red Mason Bee, Using nester kits, Frequently asked questions, The need to conserve wild bees and what you can do, Other solitary bees managed for pollination and Where to get your free nester kits. It is suggested that one Red Mason Bee can do the work of 120 worker Honeybees when it comes to pollinating fruit trees; this makes it a viable alternative to the Honeybee and it has the added advantage that is not at all aggressive. Aimed at a general audience, the booklet is written in clear and easily understood English and should do much to broaden the popularity of bees. As the author himself says, we think nothing of putting up a nest-box for the Blue Tits, so why not do the same for this incredibly useful bee. I recommend the work to all gardeners and their allies as a guide to ways in which they can, in their own gardens and with minimal effort or cost, make a contribution to local biodiversity.

A catalogue of the Irish Chalcidoidea (Hymenoptera) by J. P. O'Connor, R. Nash and Z. Bouček. *Occasional publication* number 6 of the Irish Biogeographical Society, 2000. A5, 136pp., folded and stapled in paper wrapper. ISBN 0 9511514 5 2. Available from the first named author at the National Museum of Ireland, Kildare Street, Dublin, Ireland. £8 (Sterling or Irish) inclusive of postage.

This work, which is dedicated to Francis Walker (1809-1874) and Marcus W. R. de Vere Graham (1915-1995) in recognition of their important contributions to knowledge of the Irish chalcid fauna, forms a companion to an earlier work on Irish Braconidae (*Occasional publication* number 4). It represents the first ever attempt to list the chalcid species of Ireland. A total of 457 species are included and of these 59 are recorded from Ireland for the first time; this represents in the order of 30% of the number known from Britain (approximately 1,465 species). Twelve families are included and the family Ormyridae is formally added to the Irish fauna. The work is based largely on published information and gives full data on distribution, flight-period and hosts. In some cases, previously unpublished information gleaned from examination of museum specimens is provided. Almost all of the world's insects are affected by parasites at some stage of their life cycle and the Chalcidoidea are an immensely important group involved in this; the work represents an important contribution to knowledge of Irish biodiversity.

Continued from back cover

Obituary

Lt. Col. A. Maitland Emmet MBE, TD, MA, Hon. FRES, FLS. *Basil Harley* 73-78

Book Reviews

<i>Ladybirds of Surrey</i> by Roger D. Hawkins	93
<i>The distribution of the Ephemeroptera in Ireland</i> by Mary Kelly-Quinn and John J. Bracken	93-94
<i>The Aurelian legacy: British butterflies and their collectors</i> by Michael A. Salmon . . .	94
<i>Checklist of the flora and fauna of Wicken Fen</i> by Laurie Forsythe and Basil Harley . .	95
<i>Whip spiders (Chelicerata: Amblypygi): Their biology, morphology and systematics</i> by Peter Weygoldt	95-96
<i>The red mason Bee: Taking the sting out of bee-keeping</i> by Christopher O'Toole	96
<i>A catalogue of the Irish Chalcidoidea (Hymenoptera)</i> by J. P. O'Connor, R. Nash and Z. Bouček	96

Subscriber notice

Dipteron: A new journal of interest to British entomologists. *Christian F. Kassebeer* . . 92

Entomologist's Monthly Magazine

Caters for articles on all orders of insects and terrestrial arthropods, specialising in the British fauna and groups other than Lepidoptera. Published March, July and November (4 months per issue)
Annual subscription UK and Europe £33 (\$72), USA and Rest of World £36 (\$79).

Entomologist's Gazette

An illustrated quarterly, devoted to Palaearctic entomology. It contains articles and notes on the biology, ecology, distribution, taxonomy and systematics of all orders of insects, with a bias towards Lepidoptera. Caters for both the professional and amateur entomologist. Published January, April, July and October.
Annual subscription UK and Europe £29 (\$64), USA and Rest of World £33 (\$72).

The Moths and Butterflies of Cornwall and the Isles of Scilly

by F.H.N. Smith (County Species Recorder)

The systematic list gives details of localities, dates and provenance for over 1500 species, also noting the status currently assigned by English Nature to the nationally uncommon or endangered species which occur in Cornwall. Listed are species gained since the Victoria County History, 1906, and those not since recorded. 480 pages including 152 colour illustrations. **Hardback £44 + P&P £3.**

Handbook of Palaearctic Macrolepidoptera

VOLUME 1 Sesiidae – Clearwing Moths

by K. Špatenka, O. Gorbunov, Z. Laštůvka, I. Toševski and Y. Arita

Synonymic lists, descriptions section, full data on male and female genitalia, bionomics and habitat and distribution maps. Most species illustrated by superb watercolour paintings by Starý, Holzinger and Gregor. Published October 1999. **Price £120 + P&P: UK £5, Overseas £10.**

Payments by cheque or Giro Transfer to account no. 467 6912.

For further details
please write to:

GEM PUBLISHING COMPANY
Brightwood, Brightwell,
Wallingford, Oxon OX10 0QD



THE ENTOMOLOGIST'S RECORD

AND JOURNAL OF VARIATION

<http://members.netscapeonline.co.uk/colinwplant/entrechome.html>

Contents

The European status of the UK Biodiversity Action Plan Moths. <i>M. S. Parsons</i>	49-62
<i>Cheilosia ranunculi</i> Doczkal (Dip.: Syrphidae) in Britain. <i>David Gibbs & Colin W. Plant</i>	65-68
<i>Eurytoma mayri</i> Ashmead (Hym.: Eurytomidae) and <i>Torymus rubi</i> (Schrank) (Hym.: Torymidae): Insects new to Ireland. <i>J. P. O'Connor</i>	69-70

Notes

Early appearance of the Spring Usher <i>Agriopsis leucophaearia</i> (D.& S.) (Lep.: Geometridae) in north London (Middlesex) in January. <i>K. G. V. Smith</i>	62
More early emergences of moths. <i>Colin W. Plant</i>	63-64
<i>Dioryctria schuetzeella</i> Fuchs (Lep.: Pyralidae) in Dorset. <i>R. R. Cook</i>	64
<i>Chrysoteuchia culmella</i> (L.) (Lep.: Pyralidae) flight period. <i>David Manning</i>	70
Little-known entomological literature – 7. <i>Brian O. C. Gardiner</i>	71-72
<i>Thera juniperata</i> (L.) (Lep.: Geometridae) in Juniper Valley, Aston Upthorne, Oxfordshire. <i>Paul Waring</i>	78
Lepidoptera new to Somerset in 2000. <i>Martin J. Ellis</i>	79
Satin Beauty <i>Deileptenia ribeata</i> (Clerck) (Lep.: Geometridae) new to north-east Scotland. <i>Robert M. Palmer & Cedric W. N. Holmes</i>	79
Hazards of butterfly collecting: <i>Ornipholidotos larseni</i> – Nigeria, 1967/69. <i>Torben B. Larsen</i>	80-81
<i>Sorhagenia janisewskae</i> Riedl (Lep.: Cosmopterigidae) feeding on <i>Rhamnus catharticus</i> and new to Lancashire. <i>Stephen Palmer, Robert M. Palmer & John R. Langmaid</i>	81-82
A further late record of the Mother of Pearl <i>Pleuroptya ruralis</i> (Scop.) (Lep.: Pyralidae). <i>Jon Clifton & Adrian Wander</i>	82
A further late occurrence of the Mother of Pearl moth <i>Pleuroptya ruralis</i> (Scop.) (Lep.: Pyralidae) in the Isle of Wight. <i>S. A. Knill-Jones</i>	83
Notable Cornish Coleoptera. <i>A. A. Allen</i>	83
Editorial Comment on the note on Notable Cornish Coleoptera by A. A. Allen. <i>Colin W. Plant</i>	83
Two new localities for <i>Hemicoelus nitidus</i> (Herbst) (Col.: Anobiidae). <i>Brian Levey</i> ..	84
<i>Dorytomus ictor</i> (Herbst) (Col.: Curculionidae) widespread in the London area. <i>Richard A. Jones</i>	84-85
<i>Laricobius erichsoni</i> Rosenhauer (Col.: Derodontidae) from Aberdeenshire. <i>Arthur W. Ewing</i>	85-86
An old record of <i>Melandrya barbata</i> (Fabr.) (Col.: Melandryidae) from North Hampshire. <i>Brian Levey</i>	86
Moths on buses. <i>Tony Steele</i>	86
Sixth update on early emergences of moths at Selborne, Hampshire. <i>Alasdair Aston</i> ..	87
Larvae of the Scarce Tissue <i>Rheumaptera cervinalis</i> (Scop.) (Lep.: Geometridae) at Charlton-on-Otmoor, Oxfordshire. <i>Paul Waring</i>	91-92

Continued on inside back cover

Printed in England by

Cravitz Printing Company Limited, 1 Tower Hill, Brentwood, Essex CM14 4TA. Tel: 01277 224610

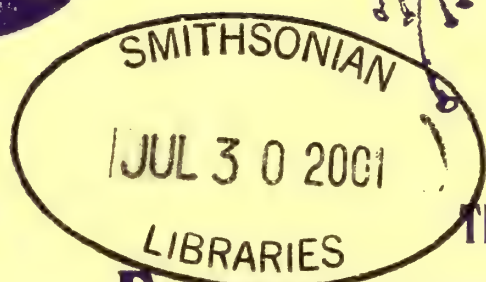
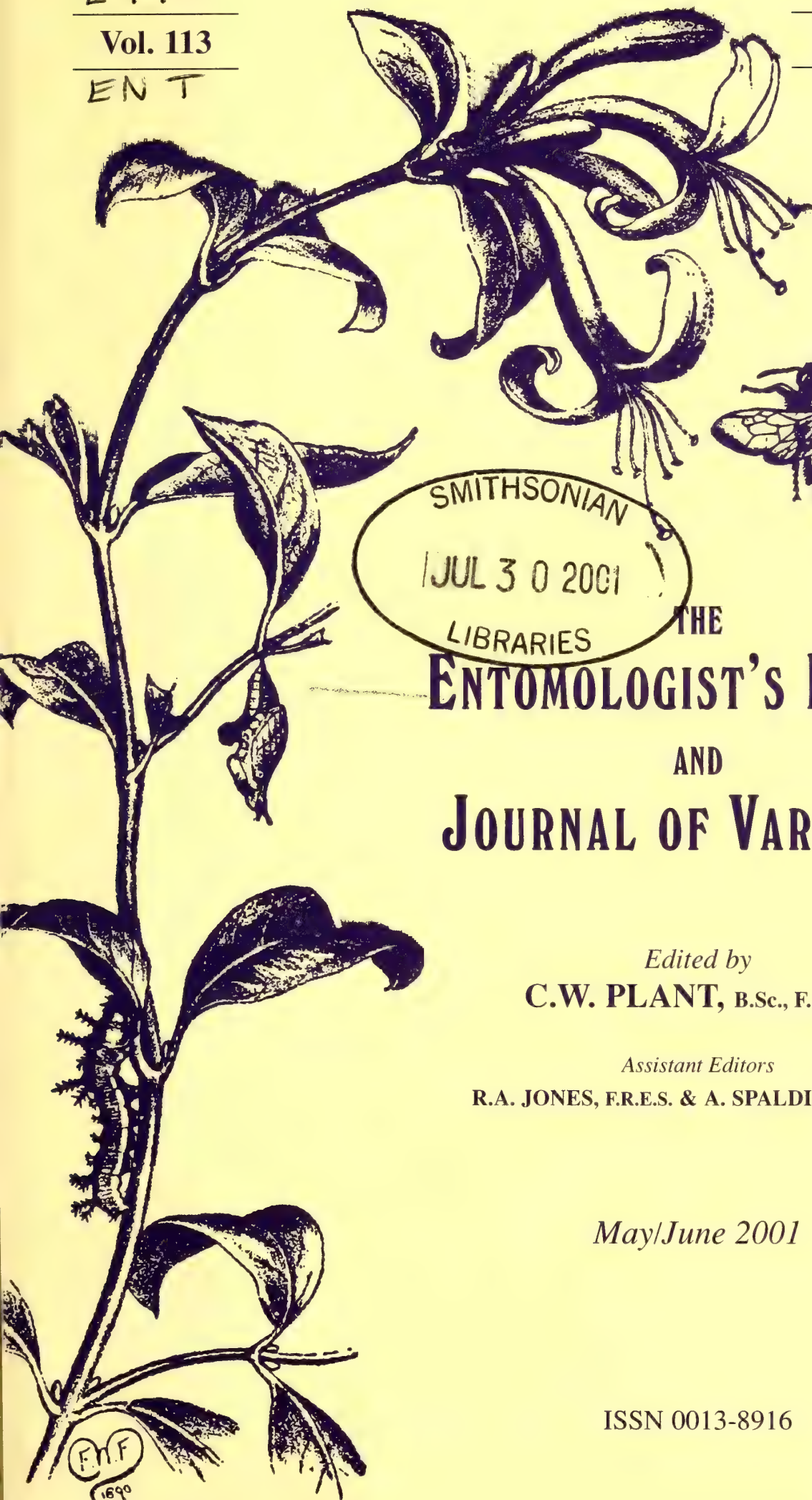
QL
461
E992

PUBLISHED BI-MONTHLY

Vol. 113

Part 3

ENT



THE
ENTOMOLOGIST'S RECORD
AND
JOURNAL OF VARIATION

Edited by
C.W. PLANT, B.Sc., F.R.E.S.

Assistant Editors
R.A. JONES, F.R.E.S. & A. SPALDING, F.R.E.S.

May/June 2001

ISSN 0013-8916



THE ENTOMOLOGIST'S RECORD

AND JOURNAL OF VARIATION

World List abbreviation: *Entomologist's Rec. J. Var.*

Editor

C.W. PLANT, B.Sc., F.R.E.S.

14 West Road, Bishops Stortford, Hertfordshire CM23 3QP.

Telephone: 01279 507697 E-mail: colinwplant@netscapeonline.co.uk

Assistant Editors

R.A. JONES, B.Sc., F.R.E.S., F.L.S. & A. SPALDING, M.A., F.R.E.S.

Editorial Panel

A.A. Allen, B.Sc., A.R.C.S.

N. L. Birkett, J.P., M.A., M.B., F.R.E.S.

J.D. Bradley, Ph.D., F.R.E.S.

J.M. Chalmers-Hunt, F.R.E.S.

P.J. Chandler, B.Sc., F.R.E.S.

C.A. Collingwood, B.Sc., F.R.E.S.

C.J. Luckens, M.B., Ch.B., D.R.C.O.G.

B. Skinner

P.A. Sokoloff, M.Sc., C.Biol., M.I.Biol., F.R.E.S.

Registrar

R.F. McCormick, F.R.E.S. *36 Paradise Road, Teignmouth, Devon TQ14 8NR*

Hon. Treasurer

C.C. Penney, F.R.E.S. *109 Waveney Drive,
Springfield, Chelmsford, Essex CM1 7QA*

Photograph Editor

David Wilson, *9 Lode Lane, Wicken,
Cambridgeshire CB7 5XP*

WHERE TO WRITE

Papers, notes, books for review, notices, adverts etc – *Editor*

Changes of address – *Registrar*

New subscriptions, renewals, donations, non-arrival of Journal – *Treasurer*

Back issues – Paul Sokoloff, *4 Steep Close, Green Street Green, Orpington, Kent BR6 6DS*

ANNUAL SUBSCRIPTION RATES

Individual subscriber £28

Institutional subscriber £40

Readers are respectfully advised that the publication of material in this journal does not imply that the views and opinions expressed therein are shared by the Editor, the Editorial Panel or any party other than the named author or authors.

Guidelines for contributors

We welcome articles for publication from all sources. It is not necessary for authors to be subscribers. Please follow the format of articles in this issue of the journal. Full instructions may be obtained by post from the editor or via our web site at:

<http://members.netscapeonline.co.uk/colinwplant/entrechome.html>

We are now able to include colour or black and white photographs (or slides), where these effectively illustrate a point in your article.

We publish notes and peer-reviewed papers on **British Isles** insects, primarily Lepidoptera and Coleoptera, but contributions on any other group may also be sent. We also include articles on European species in some situations, where we believe this to affect the British Isles fauna or to be of interest to British Isles entomologists. Non-European articles may be included, rarely, and entirely at editorial discretion.

All papers are subject to peer-review and are almost always returned to the author for corrections to be made. Authors should be prepared to make changes. Notes and communications are reviewed by the editorial panel and are not normally returned to authors for checking.

You do not need to have a computer to contribute; we are able to accept typed papers and notes, or even hand-written notes, if necessary. However, it helps enormously to receive manuscripts via E-mail or on floppy disk, in a PC-compatible format that can be read by Microsoft Word 2000. This process also saves us £3 per page in typesetting costs and makes editing much easier.

Drawings, graphs, photographs etc may be sent in an electronic form that has been previously agreed with us. In all other cases, we need the originals (which will be returned).

Authors of papers may receive 25 free reprints and can pay for more. All reprints must be ordered on a form provided with the proofs. Reprints of notes are not provided unless specifically requested at the time of submission.

The editor is always happy to discuss contributions with authors and will be especially pleased to offer help to anyone writing an article for the first time.

**LEPTIDEA REALI REISSINGER 1989 (LEP.: PIERIDAE):
A BUTTERFLY NEW TO BRITAIN AND IRELAND**

¹BRIAN NELSON, ²MAURICE HUGHES, ³ROBERT NASH AND ⁴MARTIN WARREN

¹Department of Zoology, Ulster Museum, Botanic Gardens, Belfast, N. Ireland BT9 5AB.
(brian.nelson.um@nics.gov.uk)

²91 Lansdowne Road, Belfast BT15. (maurice.hughes@zoom.co.uk)

³Department of Zoology, Ulster Museum, Botanic Gardens Belfast N. Ireland BT9 5AB.

⁴Butterfly Conservation, Manor Yard, East Lulworth, Dorset BH20 5QP.

Introduction

In 1988, a new species of *Leptidea*, *L. lorkovicii*, was described from specimens collected in the French Pyrenees by Réal as documented by Lorković (1993). This species, now known as *Leptidea reali* Reissinger, was distinguished from its sibling *sinapis* L. on the basis of differences in the female genitalia. Subsequent work by Lorković (1993) showed that there were also consistent differences in the male genitalia of both species. Mazel & Leestmans (1993) further state that they could not find any apparent intermediates between the two species. European studies have shown that morphological differences between the two species were slight and inconsistent in adults, but minor differences were reported in the form and colour of the pupae (Lorković, 1993). It was also shown that female *reali* would not mate with male *sinapis* (Lorković, 1993).

In the Pyrenees it was found that *reali* does not occur below 600m, but *sinapis* was found right down to sea level (Mazel and Leestmans, 1996). However above 1600m only *sinapis* appeared to be present (though this needed more data) (Mazel and Leestmans, 1996). Other studies in Europe have shown that *L. reali* occurs in Austria, Belgium, Croatia, Denmark, France (including Corsica), Poland, Slovenia, Spain, Sweden, Switzerland and Ukraine (Lorković, 1993; Mazel & Leestmans, 1996; Karsholt, 1999). *Leptidea sinapis* occurs also throughout much of this area. A map showing the distribution of the species in departments of France and in adjoining countries is given in Mazel and Leestmans (1996). This shows *reali* mainly in south and east France sympatrically with *sinapis*. Away from the south and east, only a few records are mapped and only *sinapis* was found here. Mazel and Leestmans (1996) indicate that only *sinapis* was found in Corsica, though the opposite is reported by Lorković.

In Britain and Ireland the Wood White *Leptidea sinapis* sensu lato is found in England, Wales and Ireland. The historic and current distribution is mapped in Asher *et al.* (2001). In Britain the Wood White underwent a large decline and was lost from 62% of its recorded range in the 20th Century (Asher *et al.*, 2001). Just 70 colonies are thought to survive (Warren & Bourn, 1998). Contrastingly in Ireland the species has increased, though this may have ceased or even reversed in recent years (Asher *et al.*, 2001). In Britain the species lives up to its common name. Most colonies are found in woodland

rides and glades or in grassland/scrub mosaics (Warren and Bourn, 1998). In Ireland the species occurs in apparently more open habitats (Rippey, 1986) and it has increased since 1945, initially due to it spreading along old railway lines (Heal, 1965). Irish populations have been described as a different subspecies *juvernica* Williams based on the more intensely coloured wings (Williams, 1946).

The separation of *L. reali* from *L. sinapis* can only be done by examination and measurement of male and female genitalia. The genitalia of both sexes of *reali* and *sinapis* are illustrated photographically in Lorković (1993) and Karsholt (1999) and by drawings in Mazel and Leestmans (1996). Table 1 summarises the difference in the lengths of the aedeagus of both species from Lorković (1993) and Karsholt (1999). Non-overlapping measurements were found in the lengths of the saccus of males and the ductus bursae of the females by Lorković (1993) and Karsholt (1999). Note that while there is no overlap apparent in the measurement of specimens from the same geographical area, a slight overlap is apparent when the data from the three areas is pooled. Lorković (1993) observed that the measurements from eastern specimens (Croatia) were smaller than conspecifics in Spain suggesting an east west cline. He said that this was without explanation but it was not a factor of body size as Spanish *sinapis* were smaller than Croatian specimens. This east west cline is supported by the measurements from Denmark.

	<i>L. reali</i>	<i>L. sinapis</i>
Croatia – males	1.64 - 1.82 - 2.02 (n = 40)	1.33 - 1.50 - 1.60 (n = 35)
France/Spain – males	1.82 - 1.96 - 2.10 (n = 5)	1.37 - 1.56 - 1.70 (n = 10)
Denmark – males	1.80 - 1.97 - 2.10 (n = 13)	1.60 - 1.63 - 1.70 (n = 7)
Croatia – females	0.77 - 0.91 - 1.01 (n = 24)	0.48 - 0.56 - 0.64 (n = 17)
France/Spain – females	0.80 - 0.91 - 0.96 (n = 7)	0.63 - 0.64 - 0.65 (n = 3)
Denmark – females	0.90 - 0.95 - 1.0 (n = 8)	0.60 - 0.66 - 0.70 (n = 5)

Table 1. Minimum, mean (in bold) and maximum lengths in millimetres of the aedeagus of *L. reali* and *L. sinapis* from Croatia and France/Spain (source Lorkovic, 1993) and Denmark (source Karsholt, 1999). In Lorkovic the minimum measurement of *sinapis* from Spain is given as 0.37, we believe in error for 1.37.

Methods

We have examined 34 British Isles specimens from a variety of sources (Appendix 1). No specimens were selected on the basis of any perceived morphological differences. MH dissected the specimens and made a slide preparation of the genitalia and abdomens. The length of the aedeagus and ductus bursa were measured using a graticule. We have not used the saccus as this can be difficult to measure. Pictures of some of the dissected genitalia and the full data can be viewed at the following address <http://www.irishmoths.fsnet.co.uk>, or by contacting the authors.

Results

Our results show that *L. sinapis* is present in both England and Ireland, but *L. reali* is only *certainly* found in Ireland (Table 2 and Appendix 1). Amongst the material collected by Gainsford in the Ulster Museum, which we believe is solely of English origin, there was a single *reali* specimen. Unfortunately this was unlabelled, so we must consider the status of *reali* in England as unconfirmed. All the Irish *sinapis* were collected in the Burren, Co. Clare and only *reali* was found in the rest of Ireland.

Elsewhere in Europe, the two species occur sympatrically, e.g., in Croatia and the Pyrenees. In Denmark, both species have been recorded in the past, but *L. sinapis* is now extinct. The only extant Danish populations are on the island of Bornholm and these conform to *L. reali* (Karsholt 1999).

	<i>L. reali</i>	<i>L. sinapis</i>
England - males	–	1.36 - 1.58 - 1.70 (n = 11)
Ireland - males	1.81 - 1.95 - 2.10 (n = 7)	1.54 - 1.63 - 1.63 (n = 2)
England - females	–	0.52 - 0.60 - 0.66 (n = 4)
Ireland - females	1.11 - 1.11 - (n = 2)	0.59 - 0.64 - 0.66 (n = 7)

Table 2. Minimum, mean (in bold) and maximum lengths in millimetres of the male aedeagus and the female ductus bursa of *L. reali* and *L. sinapis* from England and Ireland. The Gainsford *L. reali* specimen is not included.

Discussion

Our results have demonstrated the presence of *L. reali* in Ireland and possibly in Britain. This is the first new butterfly species discovered in Britain and Ireland since the Essex Skipper *Thymelicus lineola* (Ochs.) was recognised in 1889 (Emmet & Heath, 1989). These are clearly initial findings. More research is needed to determine the precise distribution and status of each species and matters which need to be addressed include the following:

- Does *reali* occur in England (remembering that the Gainsford specimen is unlocalised)?
- What is the distribution of each species in Britain and Ireland and to what extent are they sympatric?
- Which species are still extant? We only have proof that *L. reali* is extant in Ireland.
- Following on from this, which species occur in the declining colonies in England? Is this just one species or both? The need to conserve all remaining populations of the “Wood White” is reinforced by this finding.

- Any reintroduction plans, which in any case should only be done after detailed consultation and with all legal consents, need to be totally re-evaluated in light of the results presented here.
- There is a need to evaluate morphological characters for field separation of these species.
- If others can contribute, a joint study of as many specimens as possible across Britain and Ireland is clearly desirable.

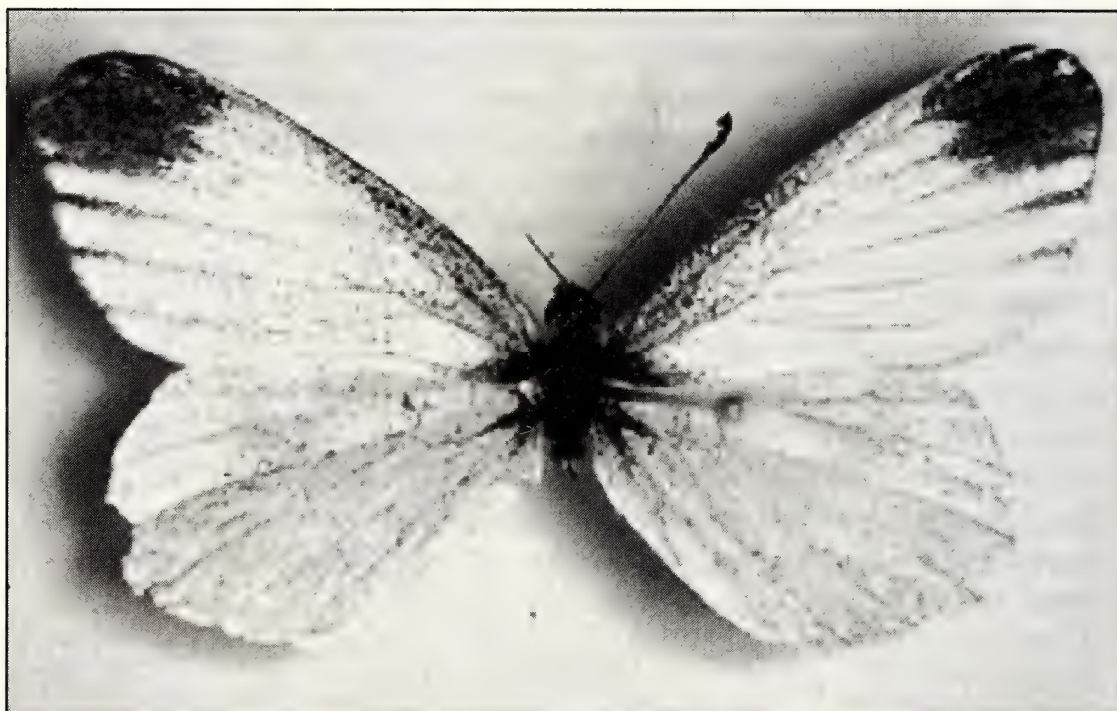


Plate G. *Leptidea reali*, Northern Ireland, June 2000

Acknowledgements

We wish to acknowledge the advice and help rendered to us by Ken Bond (University College Cork), John Haslett (University of Salzburg, Austria), Ole Karsholt (Zoological Museum, University of Copenhagen), John Lavery (Tralee, Co. Kerry), Geoff Martin (Natural History Museum), Nino Mihokovic (University of Zagreb), Virginia and Søren Simonsen (Odense, Denmark) and Walter Veale (Lisburn, N. Ireland).

References

- Asher, J., Warren, M., Fox, R., Harding, P., Jeffcoate, G. & Jeffcoate, S., 2001. *The Millennium Atlas of Butterflies in Britain and Ireland*. Oxford University Press, Oxford.
- Emmet, A.M. and Heath, J. (eds.), 1989. *The Moths and Butterflies of Great Britain and Ireland. Volume 7 (1). The Butterflies (Hesperiidae-Nymphalidae)*. Harley Books, Colchester.
- Heal, H.G., 1965. The Wood-White *Leptidea sinapis* L. and the railways. *Irish Naturalists' Journal* **15**: 8-13.
- Karsholt, O., 1999. Dagsommerfugleslægten *Leptidea* Billberg i Danmark. *Lepidoptera* **7**: 237-249.

- Lorković, Z., 1993. *Leptidea reali* Reissinger 1989 (= *lorkovicii* Réal 1988), a new European species (Lepid., Pieridae). *Natura Croatica* **2**: 1-25.
- Mazel, R. & Leestmans, R., 1996. Relations biogéographiques, écologiques et taxinomiques entre *Leptidea sinapis* Linné et *L. reali* en France, Belgique et régions limitrophes (Lepidoptera: Pieridae) *Linneana Belgica* **15**: 317-331.
- Ripsey, I., 1986. The Butterflies of Northern Ireland. *Irish Naturalists' Journal* **22**: 133-144.
- Warren, M.S. & Bourn, N.A.D., 1998. Species Action Plan: Wood White *Leptidea sinapis*. Butterfly Conservation, Wareham.
- Williams, H. B., 1946. The Irish form of *Leptidea sinapis* L. *Entomologist* **79**: 1-3.

APPENDIX 1: Sources of *Leptidea* specimens examined

ENGLAND

L. sinapis

- Salcey Forest, Northamptonshire, July 1977 and June 1978, 4 males & 3 females, Martin Warren;
- Yardley Chase, Northamptonshire, 1978, 1 male, Martin Warren;
- Woodbury, Devon (?), 1969, 1 male, Gainsford collection, Ulster Museum;
- Unknown locality, mid 1970s, 1 male, Walter Veale;
- Plaistow, West Sussex, 14 June 1942, 2 males, Gainsford collection, Ulster Museum;
- Loxwood, 14 July 1942, 1 female, Gainsford collection, Ulster Museum.

IRELAND

L. reali

- The Umbra, Co. Londonderry, June 2000, 2 males, Brian Nelson, Ulster Museum;
- Rathdrum, Co. Wicklow May 1949, 1 male, R. F. Haynes, Ulster Museum;
- Ballydugan Lake, Co. Down, July 1975, 1 male, Walter Veale;
- near Enniskillen, Co. Fermanagh, 1 female, R. F. Haynes, Ulster Museum;
- Hillsborough, Co. Down, 31 May 1971, 1 female, J Haslett, Ulster Museum;
- Townley Hall, Co. Louth, 23 June 1973, 1 male, J Haslett, Ulster Museum;
- Barrigone, Co. Limerick 5 June 1989, 1 male, J. W. Lavery, Ulster Museum;
- Dromore Forest, Co. Clare, 29 May 1978, 1 male, Martin Warren.

L. sinapis

- Ballyvaughan, Co. Clare, 19 June 1981, 1 male, R. F. Haynes, Ulster Museum;
- Cloncoose [Clooncoose], Co. Clare, 7 July 1985, 2 females, J. W. Lavery, Ulster Museum;
- Burren Co. Clare, 16 June 1984, 4 females, J. W. Lavery, Ulster Museum;
- Burren, Co. Clare, 28 May 1978, 2 males and 1 female, Martin Warren.

UNKNOWN

L. reali

- 1 male, Gainsford collection, Ulster Museum.

Little known entomological literature – 8

Times Telescope was an almanac published monthly in the early years of the nineteenth century. It contained a curious mixture of useful information, curious facts and astrological predictions. Above all it was very “natural history” orientated and each issue contained a monthly account, under the title of *The Naturalists Calendar* drawing attention to the insects, birds, other animals and flora that might be seen in that month. It actually contains one of the earliest mentions of migration.

Many of the volumes contain an extensive *Introductory Essay* and eight of these concern natural history with two being devoted entirely to insects and the final one in the concluding volume is by Professor Rennie (perhaps better known for his *Conspectus of butterflies and moths* and his three books *Insect Miscellanies*, *Architecture and Transformations*) and this contains extensive entomological material. The authorship of the various articles were, as was so often the case in those days, anonymous, but one cannot but have the impression that perhaps Professor Rennie may have been one of them. They are all, including the monthly notes, worth studying for the insight they give into the state of knowledge and attitudes to the study of natural history nearly two hundred years ago. It is also likely that it was articles such as these, not overtly scientific, that will have been read by and aroused the enthusiasm of the rising generation of Victorian Entomologist such as Newman, Doubleday, Westwood, Stainton, etc.

It is worth listing all these Introductory essays as the non natural history ones show the extensive range of coverage of this periodical. They are as follows.

VOL 1	1814	Introduction, The Calendar of Julius Caesar.
VOL 2	1815	Principles of Astronomy.
VOL 3	1816	Elements of Botany pp vii-xxx.
VOL 4	1817	Principles of Zoology pp vii-lxx.
VOL 5.	1818	Outlines of Geology pp vii-xxiv and Outlines of mineralogy pp xxv-liv.
VOL 6	1819	Compendium of chemistry pp vii-l.
VOL 7	1820	Outlines of Entomology pp ix-lxviii.
VOL 8	1821	Elements of British Ornithology pp xi-lxxxviii, with a fine coloured plate.
VOL 9	1822	Outlines of Conchology pp xiii-lxiv, with a fine coloured plate.
VOL 10	1823	On the habits, economy and uses of British insects pp xvii-lxxii, with a fine coloured plate.
VOL 11	1824	Historical and physical Geography pp xxi-cxiv.
VOL 12	1825	A brief history of English Sacred poetry
VOL 13	1826	The physical powers of man.
VOLS 14-19	1827-33	These volumes do not have an introductory essay.
VOL 20	1834	Notes of a Naturalist by Professor Rennie. Separately paginated pp 1-146 with 2 steel engraved plates depicting Baron Cuvier and Sir Joseph Banks on the one and “The Moralist” on the other.

– BRIAN O. C. GARDINER, 2 Highfield Avenue, Cambridge CB4 2AL.

MIGRANT BUTTERFLIES AND THE MILLENNIUM ATLAS

RICHARD FOX¹, MARTIN WARREN¹, JIM ASHER¹, GAIL JEFFCOATE¹,
STEPHEN JEFFCOATE¹ AND PAUL HARDING²

¹ *Butterfly Conservation, Manor Yard, East Lulworth, Wareham, Dorset BH20 5QP*

² *Biological Records Centre, CEH Monks Wood, Abbots Ripton, Huntingdon PE28 2LS*

Introduction

The Butterflies for the New Millennium (BNM) project was conceived to provide up-to-date information on the distributions of butterflies, and follow up the only previous national survey, which found that many species had undergone substantial declines (Heath *et al.*, 1984). The project, managed in the UK by Butterfly Conservation and the Biological Records Centre (at the Centre for Ecology and Hydrology) and in the Republic of Ireland by The Dublin Naturalists' Field Club, became the largest and most comprehensive butterfly survey ever undertaken in Britain and Ireland.

Through local partnerships between a wide range of conservation and land management organisations, natural history societies and local biological records centres, over 1.6 million records have been collated from some 10,000 recorders. Coverage at the 10 km square level has exceeded 98% in both Britain and Ireland and over 90% of the records have a 1 km square grid reference and a precise date. Most also have information on the number of butterflies seen.

The initial phase of survey work (1995-9) has been analysed and the results published in a major new atlas, the *Millennium Atlas of Butterflies in Britain and Ireland* (Asher *et al.*, 2001). The *Millennium Atlas* presents an up-to-date assessment of the status of our butterflies, the habitats they live in, the threats they face and the major changes that have occurred since publication of the previous atlas (Heath *et al.*, 1984). A wider context is provided by considering long-term trends, derived from over two centuries of recording, and recent changes elsewhere in Europe. In addition, the atlas summarises the wealth of new information about butterfly ecology, incorporates findings from the Butterfly Monitoring Scheme and presents a vision of how these insects might be conserved in the future.

This article reviews information obtained on our main migrant butterflies and how they fared during the five-year BNM survey period, 1995-9. Only non-resident species are discussed and the migration of widespread resident species such as the Large White (*Pieris brassicae*) and Small Tortoiseshell (*Aglais urticae*) is not covered.

Regular migrants

Clouded Yellow *Colias croceus* (Geoff.)

The Clouded Yellow is a regular visitor to Britain and Ireland and, although some are seen every year, the species is renowned for occasional mass

migrations and subsequent widespread breeding. Large numbers of early summer (May/June) immigrants can result in enormous increases in Clouded Yellow abundance and distribution (by August), and are fondly and long remembered as "Clouded Yellow Years". Such events are dramatic, but unpredictable, varying in magnitude even within these islands.

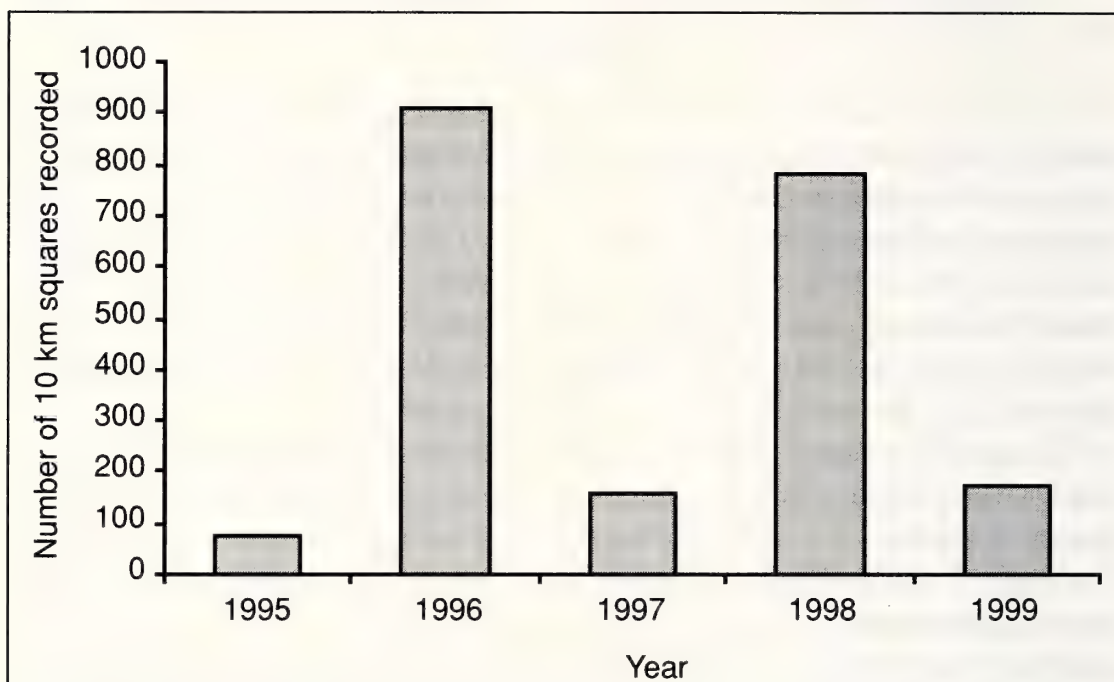


Figure 1: The number of 10 km squares in which the Clouded Yellow was recorded in each year (1995-9).

Within the BNM survey period, 1996 was the most significant year for the Clouded Yellow, with records from 913 10 km squares (see Figures 1 and 2). In that year the butterfly was widespread in southern England, extending northwards and westwards into Northumberland and Cumbria, and as far as Anglesey and Pembrokeshire in Wales. Sightings in Scotland and Ireland were fewer, although this may have been due in part to lower levels of recording. The preceding and subsequent years produced no more than a scattering of records by comparison (76 10 km squares in 1995 and 155 in 1997), suggesting that any successful overwintering of Clouded Yellows had an insignificant effect on the population. In Ireland 1998 proved to be the best year for the species during the survey.

Aside from the major influxes in 1996 and 1998, further interest in the Clouded Yellow was stimulated by convincing observations of overwintering larvae at a coastal site near Bournemouth, Dorset in 1998/9 (Skelton, 1999). Full development of the larvae was recorded and adults were seen at the site from late March 1999, at which time conditions appeared to be unfavourable for migration from continental Europe. Previously, many authors had doubted the potential of this species to survive winters in Britain or Ireland, but these observations suggest strongly that overwintering is possible.

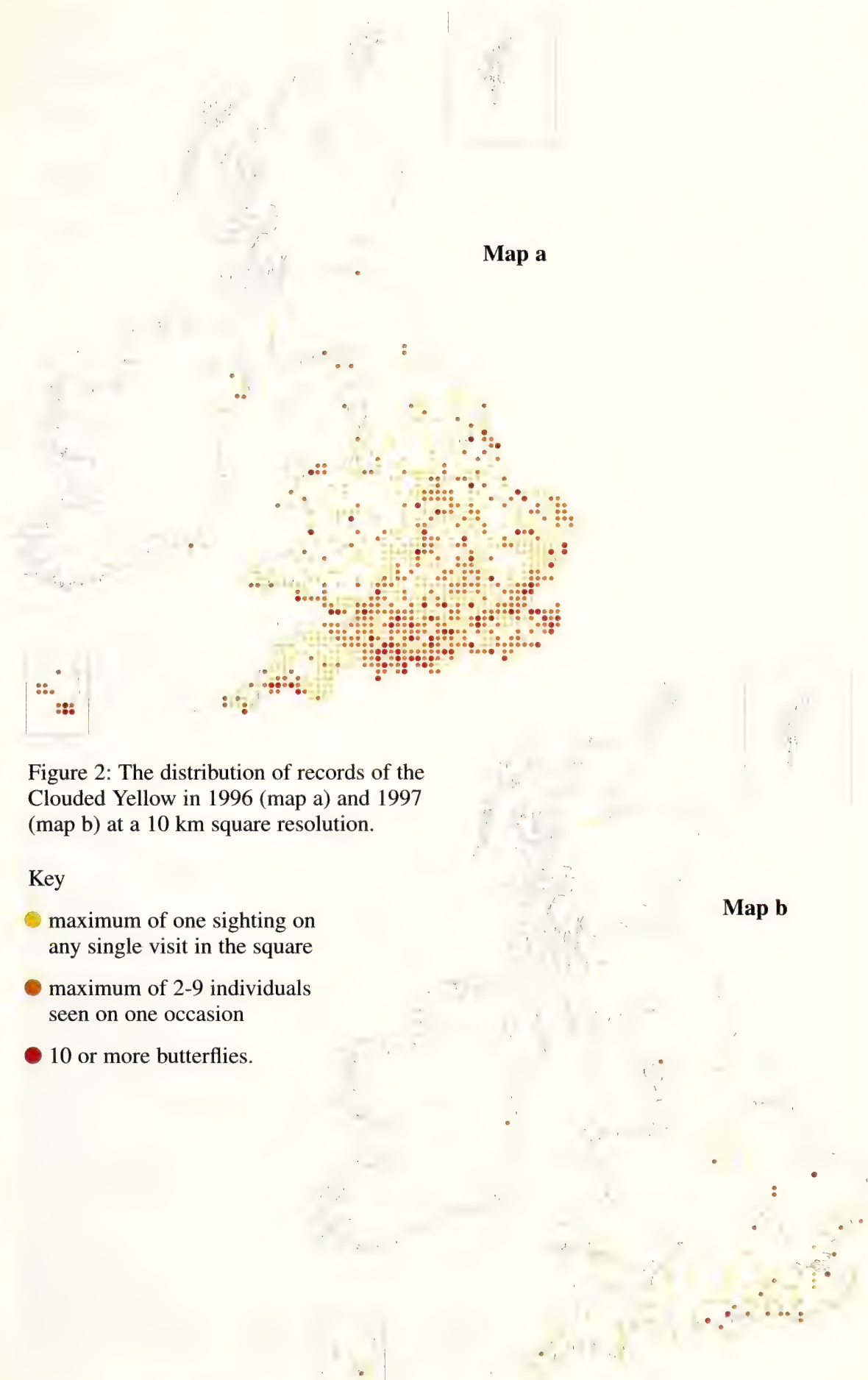


Figure 2: The distribution of records of the Clouded Yellow in 1996 (map a) and 1997 (map b) at a 10 km square resolution.

Red Admiral *Vanessa atalanta* (L.)

In contrast, there is considerable evidence for the overwintering of the Red Admiral. Although it is still classed as a migrant rather than a resident species, this distinction appears to be blurring as recent field work has shown eggs and larvae, as well as adults, to be present (sometimes in high numbers) during the winter in southern England (Tucker, 1996). The survival of these overwintering individuals, coupled with the variable waves of migration from continental Europe and summer breeding, make the interpretation of records difficult.

As a highly mobile species that may be encountered in any habitat, from seashore to city centres and mountain tops, the Red Admiral has an almost ubiquitous distribution in Britain and Ireland that has changed little over the past few decades. However, the abundance of the butterfly as measured by the Butterfly Monitoring Scheme (BMS) run by the Centre for Ecology and Hydrology (Pollard & Yates, 1993), shows a different picture. As with other migrant species, abundance varies greatly from year to year. For example, in the BNM survey period there were high numbers of Red Admirals in 1995 and 1996, followed by much lower abundance in 1997-9. With migration being such a variable phenomenon, the abundance of migratory species in Britain is not expected to be correlated from one year to the next, and this is the case for the Painted Lady (*Vanessa cardui*). However, during the past 20 years the abundance of the Red Admiral at BMS sites has increased significantly (Figure 3). Since abundance in spring is not correlated with that of the previous autumn, this trend does not appear to be caused by increasing numbers of overwintering individuals (Pollard & Greatorex-Davies, 1998).

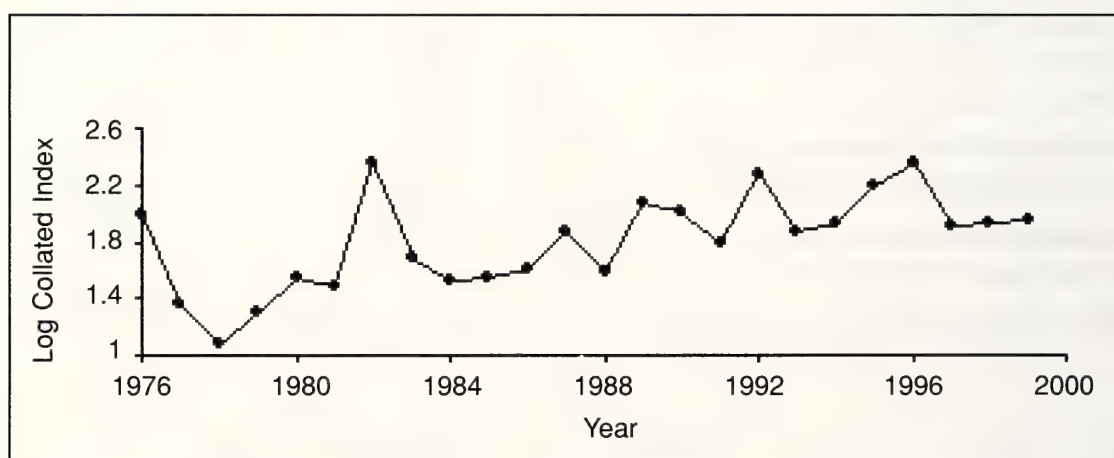


Figure 3: Red Admiral numbers have increased significantly at sites in the Butterfly Monitoring Scheme since 1976.

The BMS data for the Red Admiral reveal two other interesting and statistically significant trends. Analysis has shown that the first record of the species each year at monitored sites was on average 36 days earlier in the mid-1990s compared to the mid-1970s (Roy & Sparks, 2000). Similarly the flight

period of the butterfly has lengthened significantly (by an average of nearly 40 days) during the same period. The relative roles of overwintering and migration in these trends have not been assessed, but climatic warming is strongly implicated as the driving factor.

Painted Lady *Vanessa cardui* (L.)

The Painted Lady completes the trio of regular migrant species. In terms of distribution, it occupies the middle ground, being more widely distributed in most years than the Clouded Yellow, but less widespread than the Red Admiral. The Painted Lady makes long distance migrations from North Africa to recolonise Britain and Ireland each year, reaching even the most remote of our islands (it was the only butterfly recorded on St Kilda during the BNM survey). The distribution and abundance of the species varies greatly from year to year and the best year during the BNM survey was 1996. In that year the butterfly was recorded from 2110 10 km squares, which compares to an average of around 1000 in each of the other four years of the project. Not surprisingly, the abundance of the Painted Lady measured by the BMS was exceptionally high in 1996, but fell to average levels in subsequent years. There is no significant relationship between the numbers recorded in successive years throughout the 25 years of the BMS, indicating that the summer breeding that occurs here every year makes little contribution to long-term populations and that overwintering survival is low. A pan-European study of the 1996 migration event concluded that the level of migration from the permanent populations in North Africa was the most important factor determining abundance in European countries (Pollard *et al.*, 1998).



Painted Lady *Vanessa cardui* (L.) Photograph: © Martin Warren, Butterfly Conservation

As with the Clouded Yellow, most authors have concluded that the Painted Lady has little or no ability to overwinter in Britain and Ireland (Emmet & Heath, 1989; Thomas & Lewington, 1991). However, in the winter of 1997/8 a marked adult overwintered successfully at Hayle, Cornwall (Wacher, 1998).

Figure 4: The distribution of Camberwell Beauty records (1995-9) at 10 km square resolution.

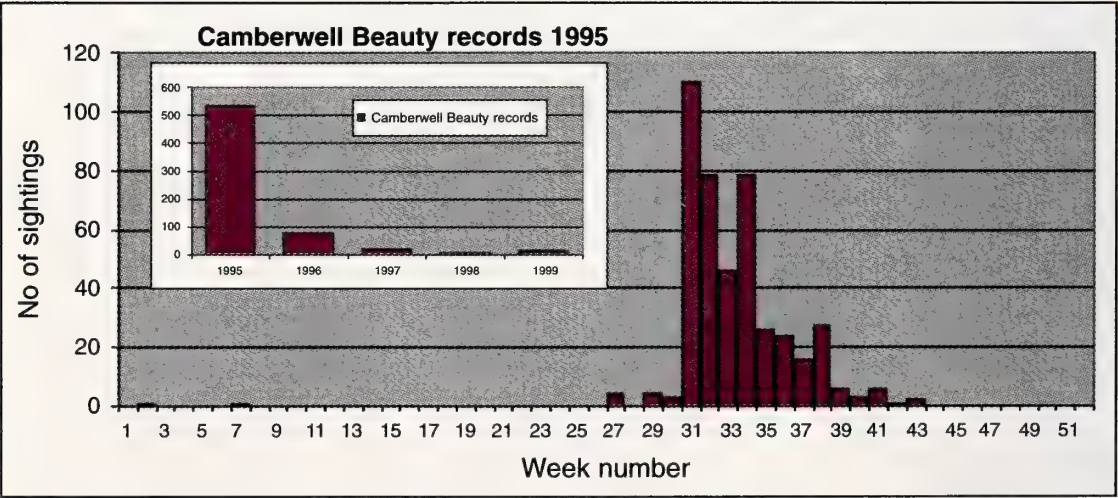


Figure 5: The number of Camberwell Beauty records by week during 1995, showing the timing of the major influx of migrants. The inset graph shows the total number of records of the Camberwell Beauty received in each year (1995-9).

It is not known whether the butterfly was capable of breeding after surviving the winter, but it does suggest that overwintering might be a more common event than was previously realised.

Rarer migrants

Camberwell Beauty *Aglais antiopa* (L.)

The Camberwell Beauty is a large, mobile and unmistakable butterfly that is rarely seen in Britain and Ireland, but which occasionally arrives in large numbers. Most of the individuals seen here probably migrate from Scandinavia, where the species is widespread. It has been suggested that the temperate winter conditions of Britain and Ireland are too mild and damp for successful hibernation of Camberwell Beauties in most years (Thomas & Lewington, 1991), although there is some evidence of occasional overwintering (e.g. early spring sightings in 1996). In contrast to the regular migrant species discussed above, there are no breeding records for the Camberwell Beauty here.

The distribution of Camberwell Beauty records from the BNM survey reflects the Scandinavian origin of the immigrants, with many sightings in East Anglia and south-east England (see Figure 4). Nevertheless, the species was recorded right across Britain and in both Northern Ireland and the Republic of Ireland. As with other migrant species, large influxes of Camberwell Beauties have occurred in particular years (e.g. 1846, 1872, 1947 and 1976), and an unusually large number arrived in 1995 during a period of persistent easterly winds (Tunmore, 1996). Assessment of the dates of BNM records during this influx suggested the sudden arrival of many individuals (see Figure 5) and also showed the near simultaneous immigration of butterflies at all latitudes in Britain, which is consistent with migration from the east, but not from the south.

Queen of Spain Fritillary *Issoria lathonia* (L.)

This species is a rare visitor to England and the Channel Islands, and very few records exist for Ireland, Scotland and Wales. The butterfly was more common in the latter half of the nineteenth century and in the 1940s, and there are rare records of breeding, although no historical evidence of successful overwintering. Sightings of the Queen of Spain Fritillary were very rare between 1950 and 1989, but the BNM survey period saw a dramatic increase in records.

Many of the recent sightings were in East Anglia, where the species was very rare during most of the twentieth century. Of particular note were a series of sightings on and around the Royal Society for the Protection of Birds' Minsmere Reserve on the Suffolk coast. These records, which began in 1995 and rose to a peak in 1997, suggested that immigrant Queen of Spain Fritillaries were breeding in the area, giving rise to "native" late-summer broods. Furthermore, the overall number of sightings and one record of an adult early in the season led to the exciting possibility that overwintering had occurred and a resident colony had been founded (Wilson, 1998). These hopes

were short-lived and there were very few sightings in the area in subsequent years.

The outlook for this species appears brighter than for many decades. Its distribution and abundance are increasing in the Netherlands, Belgium and France and we might expect the recent increase in the numbers of migrants reaching Britain to continue.

Monarch *Danaus plexippus* (L.)

There was a similar increase in Monarch sightings in Britain and Ireland during the BNM survey. It is now widely accepted that most Monarchs seen here are true migrants from North America, carried across the Atlantic by strong weather systems (Coombes & Tucker, 1996; Davey, 2000), although a few may be released or escape from captive stock or migrate from the small European populations. The distribution of sightings shows a strong south-westerly and coastal bias, which is consistent with trans-Atlantic migration.



Monarch *Danaus plexippus* (L.)

Photograph: © Butterfly Conservation

As with other migrant butterflies, high numbers of Monarchs have arrived here in particular years (e.g. 1968 and 1981). The two largest influxes ever recorded in Britain and Ireland both occurred during the BNM survey, in the autumns of 1995 and 1999. It is very difficult to determine the numbers of individuals involved, but there were approximately 200 sightings in 1995 and over 400 in 1999. An analysis of the dates of records in 1999 suggests the almost simultaneous arrival of many individuals in late September and a delay between the first sightings in south-west England and south-west Ireland and sightings elsewhere, a pattern consistent with the influx arriving from the south-west.

Despite the recent increase in the numbers of migrant Monarchs reaching our shores, the species remains little more than a delightful curiosity. Its larval foodplants (Milkweeds *Asclepias* spp.) are not native to Britain and Ireland and are not widely cultivated, so there are no realistic prospects of breeding or colonisation.

Other rare migrant species

Records of several other rare migrant species were received during the BNM survey. Interpretation of some of these is limited by identification difficulties (e.g. the Pale Clouded Yellow, *Colias hyale* and Berger's Clouded Yellow *C. alfacariensis*) or simply by the extreme rarity of records (e.g. the Bath White, *Pontia daplidice* and Short-tailed Blue, *Cupido argiades*). Even the Long-tailed Blue *Lampides boeticus*, which is readily identified and was recorded in each year of the BNM survey, presents problems in determining the origin of individuals. Migration is a regular feature of Long-tailed Blue populations in continental Europe, and it seems likely that some, perhaps most, of the individuals recorded in Britain are genuine immigrants. However, these may be confused with deliberately released individuals or adults that have emerged from imported foodstuffs. There have been several records of the latter in recent years (and presumably many unrecorded ones), which is perhaps not surprising as several culinary bean and pea species are amongst its range of over 45 larval foodplants worldwide.

Recent records of the Large Tortoiseshell *Aglais polychloros* are also difficult to interpret. This large, mobile butterfly is thought to have become extinct in Britain during the 1980s. Nevertheless, there were records from 29 10 km squares during the BNM survey in southern and eastern England and in the Channel Islands. These records have been carefully checked to exclude misidentifications of Small Tortoiseshells, but it is not possible to separate genuine migrants from continental Europe from captive bred individuals that have escaped or been released. Many of the recent records are from coastal areas and are probably of genuine migrants, but our knowledge of this species is hampered by the continued release of captive stock by breeders.

Discussion

It is apparent from this brief review that the BNM survey period (1995-9) was an exciting time for those interested in migrant butterflies. All of the regular migrants had at least one particularly good year: the Clouded Yellow in 1996 and 1998, the Red Admiral in 1995 and 1996 and the Painted Lady in 1996. Naturalists have also gathered important direct and indirect evidence for their overwintering abilities. In addition, sightings of some of our rarer migrants, such as the Queen of Spain Fritillary and Monarch appear to have substantially increased in frequency in comparison to previous decades. Do these findings represent a widespread change or are they mere coincidence? Whilst the collation of records for the BNM project has identified these

events, it has shed little light on their causes and, indeed, whether the recent increases indicate a real trend or just natural variation. If there is a real trend towards increased numbers or frequency of all these migrant butterflies, it is unlikely to be related to habitat change either here or in their permanent ranges, since human management of the landscape during the past few decades has been detrimental to most butterfly species. It is interesting to speculate whether climate change will allow any of these species to become permanent residents, but only time, and continued recording will tell.

Acknowledgements and further information

The BNM project and the *Millennium Atlas* would not have been possible without the enthusiastic participation and support of many organisations and individual recorders. Generous sponsorship was provided by the Vincent Wildlife Trust, the Esmée Fairbairn Charitable Trust, ICI, The Heritage Council and the Joint Nature Conservation Committee.

References

- Asher, J., Warren, M., Fox, R., Harding, P., Jeffcoate, G. & Jeffcoate, S., 2001. *The Millennium Atlas of Butterflies in Britain and Ireland*. Oxford University Press, Oxford.
- Coombes, S. & Tucker, V., 1996. The Monarch invasion of Great Britain 1995. *Butterfly Conservation News* **63**: 30–35.
- Davey, P., 2000. Backtrack for the 1999 Monarch *Danaus plexippus* (Linn.) influx. *Atropos* **9**: 17–18.
- Emmet, A.M. & Heath, J., (Eds) 1989. *The moths and butterflies of Great Britain and Ireland, 7, Part 1, HesperIIDae-Nymphalidae, The butterflies*. Harley Books, Colchester.
- Heath, J., Pollard, E., & Thomas, J.A., 1984. *Atlas of butterflies in Britain and Ireland*. Viking, Harmondsworth.
- Pollard, E. & Greatorex-Davies, J.N., 1998. Increased abundance of the Red Admiral *Vanessa atalanta* in Britain: the roles of immigration, overwintering and breeding within the country. *Ecology Letters* **1**: 77–81.
- Pollard, E. & Yates, T.J., 1993. *Monitoring butterflies for ecology and conservation*. Chapman and Hall, London.
- Pollard, E., Swaay, C.A.M. van, Stefanescu, C., Lundsten, K.E., Maes, D., & Greatorex-Davies, J.N., 1998. Migration of the painted lady butterfly *Cynthia cardui* in Europe: evidence from monitoring. *Diversity and Distributions* **4**: 243–253.
- Roy, D.B. & Sparks, T.H., 2000. Phenology of British butterflies and climate change. *Global Change Biology* **6**: 407–416.
- Skelton, M., 1999. Successful overwintering by Clouded Yellow *Colias croceus* in southern England. *Atropos* **8**: 3–6.
- Thomas, J.A. & Lewington, R., 1991. *The butterflies of Britain and Ireland*. Dorling Kindersley, London.
- Tucker, J.M., 1996. The Red Admiral – overwintering in the UK in its early stages. *Butterfly Conservation News* **62**: 21–22.
- Tunmore, M., 1996. The 1995 Camberwell Beauty *Nymphalis antiopa* (L.) influx. *Atropos* **1**: 2–5.
- Wacher, J., 1998. Successful overwintering of Painted Lady *Cynthia cardui* in the UK. *Atropos* **5**: 19–20.
- Wilson, R., 1998. The Queen of Spain Fritillary *Argynnis lathonia* – a new British breeding species? *Atropos* **5**: 3–7.

Two immaculate Sand Dart *Agrotis ripae* (Hb.) at the inland site of Calceby Beck Marsh SSSI, Lincolnshire

On 13 and 27 June 2000, I ran two Robinson pattern m.v. light traps at Calceby Beck Marsh SSSI, by the villages of Calceby and South Thoresby, near Louth, Lincolnshire, in search of the Marsh moth, *Athetis pallustris* which was reported from the site by Pilcher (1973. *Ent. Rec.* **85**: 230-233). I did not see anything of the Marsh Moth, but I recorded two immaculate Sand Dart *Agrotis ripae* on the second night. This is of interest because most lepidopterists regard the species as resident only on the coast of the British Isles. The national distribution map in Heath & Emmet (1983. *The moths and butterflies of Great Britain and Ireland* **9**: 146) shows no inland records, suggesting that the species seldom wanders inland.

Figure 1 is the distribution map which I prepared in 1996 for a review of the Nationally Scarce macro-moths with the Calceby record added. The marsh is 14 kilometres from the coast. This record raises two questions. First, is the Sand Dart resident at Calceby or is this a rare example of the species flying inland? Second, since the Sand Dart occurs at both the currently known sites for Marsh Moth on the Lincolnshire coast, one wonders whether, if the Sand Dart can wander this far, how about the Marsh moth? It is not unusual for a couple of searches for a rare moth such as the Marsh moth to draw a blank even when the moth is present, but what is the evidence for a colony at Calceby?

Phil Porter, Assistant County Moth Recorder for Lincolnshire, informs me that the late Rick Pilcher's unpublished records indicate that he had the Marsh moth at these inland sites on the following dates:

South Thoresby - apparently single males on 13 & 20 June 1970 and 6 June 1971;

Swaby Valley - apparently single males on 24 & 25 June 1971;

Calceby Beck Marsh - no numbers given, date altered, either 15 or 17 June 1973.

During the 1970s, he lived in a house (which he referred to as South Thoresby), with a garden backing on to Calceby Beck Marsh and he operated a light trap in the garden there on a fairly intensive basis. It would therefore seem that the Marsh Moth only visited the garden occasionally, and not in most years. Swaby Beck Marsh is not a site that he trapped frequently, and it is a fairly difficult site to reach with light-trapping gear. Duddington & Johnson and Johnson and Johnson give no other records from Calceby Beck Marsh and it appears that no one has operated light-traps there since – certainly the owners of the Marsh cannot recall anyone doing so. The same is probably true for Swaby Beck Marsh. There appears to be no record of Marsh moth larvae from either site, nor of any searches having taken place. If any readers know differently, I would be grateful for the information.

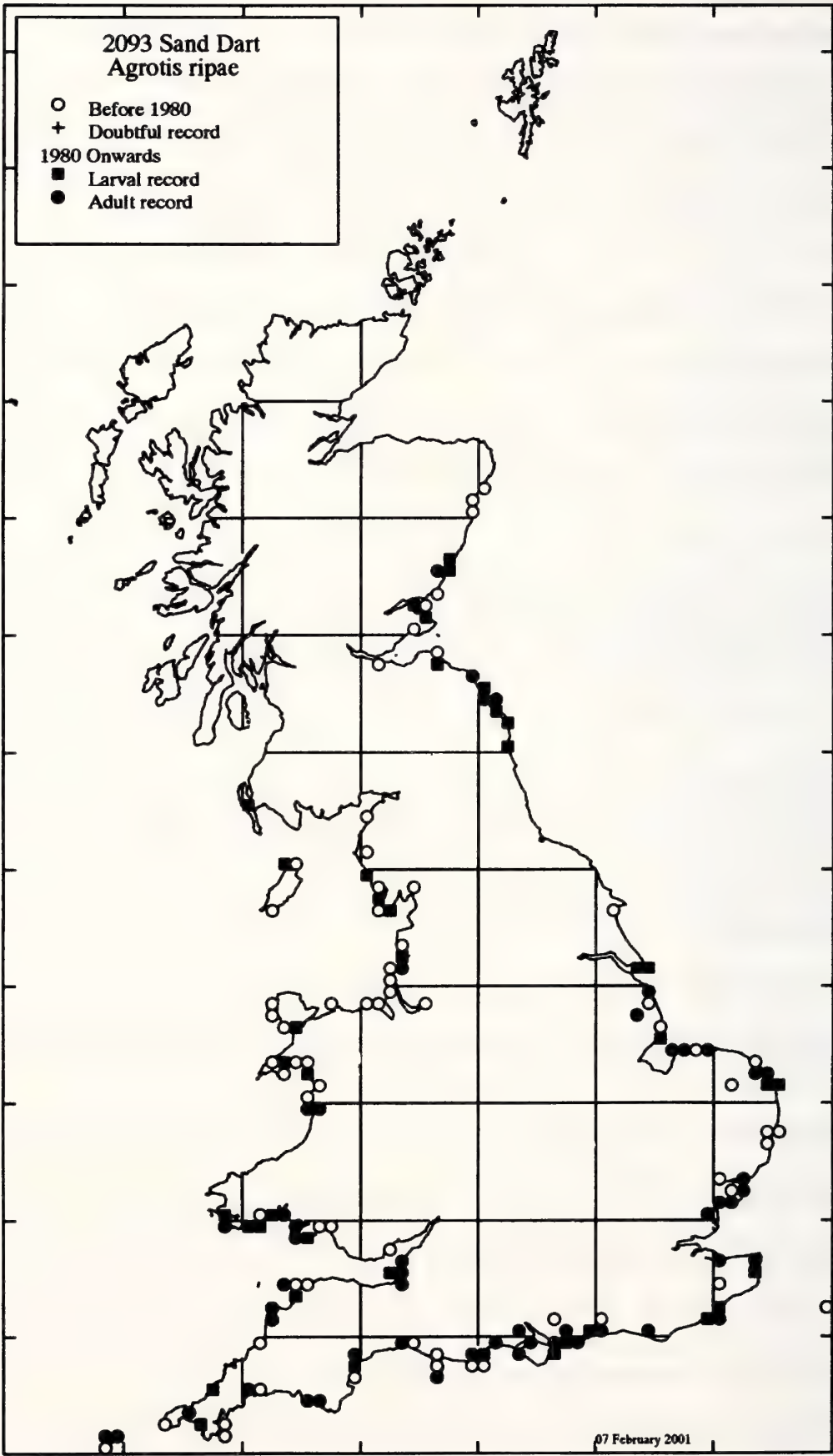


Figure 1: Distribution at ten-kilometre squares of the Sand Dart *Agrotis ripae* in Great Britain.

Concerning my own searches, on the windy cool night of 12 June 2000 at 23.15 hours, a fresh male Marsh Moth had come to one of four Robinson traps I operated at its main breeding site on the Lincolnshire coast so I knew the species was on the wing, probably near the start of its flight period for that year. The next night at Calceby was a cool, but calmer, clear dry night with a dew, 12°C at dusk falling to 6°C. I ran one trap in the marshland on each side of the Beck until 02.05 hours and searched for moths by torchlight, but saw no Marsh moths and only ten species of macro-moths, mostly as singletons. The same night I had two Robinson traps and an actinic trap out in Swaby Beck Marsh until 01.30 hours. Here I only had 15 moths of ten species also. None were of special note. When I returned to Calceby Beck Marsh on 27 June 2000 for the second attempt, the weather was much more favourable for moth-trapping, cloudy, calm, dry and mild, remaining 13°C all night, and I stayed all night, operating the two Robinson traps in the same positions as before and an actinic trap also on the far side of the beck. In the morning, I found a Sand Dart in both the traps on the far side of the beck, both moths in immaculate condition. There were 101 individuals of 38 species of macro-moths in the near Robinson trap and 134 of 31 species in the far one and 21 moths of 12 species in the actinic trap. Other noteworthy species included singletons of the Cream-bordered Green Pea *Earias clorana* and the May Highflyer *Hydriomena impluviata* the larval foodplants of both of which occur along the beck. The visit was also enlivened by the sight of a pair of Kingfishers *Alcedo atthis* piping at dawn and perching on the becksides Alders, followed by a Barn Owl *Tyto alba* quartering the marsh just above the heads of the cattle at 07.30 hours.

Later in the year I made an arrangement for two local conservationists to place a few small piles of cut grass out on the site for me to inspect after a couple of weeks for Marsh moth larvae, a technique which has been used annually with success at the main coastal site, including in 2000. Despite badgering from me, the litter piles never materialised, by which time it was too late for me to set them up, but they have been promised for 2001 when I hope to try again for this moth. I shall also be looking for more Sand Darts and will be delighted if I can report that a colony is present. Around the edge of the marsh there are several banks where the soil is quite sandy and exposed, so perhaps it is suitable for breeding.

I would be interested to hear of any other inland records of the Sand Dart. The survey was conducted as part of the UK Biodiversity Action Plan project on the Marsh moth, administered by Butterfly Conservation and funded by English Nature. The national distribution map for the Sand Dart was compiled from information collected by the National Recording Network for the Scarce and Threatened Macro-moths and plotted using the DMAP programme. I would like to thank Claire Weaver of the English Nature Local Team based at Grantham, Barrie Wilkinson of the Lincolnshire Wildlife Trust, and the

private owners of both inland sites for help with my visits and for providing background information and Phil Porter, Assistant Lincolnshire Moth Recorder, for investigating and supplying Rick Pilcher's records.— PAUL WARING, 1366 Lincoln Road, Werrington, Peterborough, PE4 6LS (E-mail: paul_waring@btinternet.com).

Moth trapping at Kingsham, West Sussex, 2000

I live on an arable farm surrounded with mature hedges at Kingsham, near Chichester, in West Sussex. Although adjacent to the A27 trunk road, there is no street lighting and no other light sources for some way to the south. For the two years we have lived here, I have trapped most nights from spring through to late autumn and have made some interesting observations.

For the first time last year, I looked at plume moths (Pterophoridae). Guided by an old borrowed copy of Beirne (1952. *British pyralid and plume moths*), but relying on confirmation by the county recorder, I actually ended up with some good records. *Agdistis bennetii* is an extremely local species confined to the south-west corner of the county. There have only been four recent sightings in Sussex, between 1990 and 1996, but I recorded three singles on 5, 7 and 20 August.

Amblyptilia acanthadactyla is another very local species with only a dozen records since the 1930s, all during a '90s "revival". Three singles found their way into my trap, on 13 and 26 August and 1 September. *Stenoptilia bipunctidactyla* has been presumed extinct in West Sussex since 1955; I caught one on 4 October. *Merrifieldia tridactyla* is a Vulnerable, very local species entirely restricted to chalk in Sussex. There have been six modern records in the county, the last in 1991. Unfortunately my specimen got separated from its slip of paper and I cannot be certain of the date.

Euzophera cinerosella is a fairly distinctive pyralid. The larvae feed in rootstocks of Wormwood *Artemisia absinthium* and pupate in a burrow in the pith of an old stem. One moth in my trap on 8 August turned out to be the first county record of this species. Co-incidentally, or not, I also trapped two Wormwood Sharks *Cucullia absinthii*, on 15 and 19 July, the first West Sussex records since 1980.

One last micro of interest: There have only been about a dozen records of *Nephoterix angustella* in Sussex. I recorded one in my parents' garden near Worthing, West Sussex on 19 September 1998 and I was lucky enough to record another here at Kingsham last year, on 24 July.

Varied Coronet *Hadena compta* spread from Kent in the 1950s and although recorded regularly in East Sussex from the 1970s, only reached Arundel in West Sussex in 1992. Interestingly, none were caught here in 1999, but 9 were attracted to m.v. light between 15 June and 19 July 2000.

Probably the most exciting event for me in 2000 followed on from the arrival of two Striped Lychnis *Shargacucullia lychnitis* in my trap, one on each of 16 and 21 June. I had noticed Dark Mullein *Verbascum nigrum* growing alongside the A27 road at nearby Aldingbourne and I visited the site on 17 July, when I found 33 larvae. A call to the County Ecologist to check that the verge was not going to be mowed resulted in the disastrous news that it was in fact to be drained, narrowed and used as a vehicle parking area for road works! Urgent action was called for, and on 21 July I took 14 larvae, the first of which pupated the next day. I took another 60 larvae from the site and all are currently overwintering with me. Striped Lychnis is a Nationally Notable species and, interestingly, the first British record came from Arundel, West Sussex in about 1842. Many larvae were collected in the county in the 1940s and 50s, but the species declined from the early 1960s. In 1991, an English Nature review found less than 30 larvae in Sussex and searches in 1994 and 1995 proved completely negative. Oddly, there had only been four confirmed records of the adult stage in the county, although I encountered a further singleton in my trap at Kingsham on 16 June 1999 and my records from this year were augmented by one from nearby Donnington on 18 June. Hopeful signs, if only verge cutting could be curbed!

Finally, on to migrants. I had a reasonable year for commoner migrants including Diamond-back Moth *Plutella xylostella*, with 4,906 between 1 May and 13 October, and a maximum of 996 on 19 June. Rush Veneer *Nomophila noctuella* amounted to 4,664 individuals between 2 June and 14 October, with a maximum of 939 on 7 August. Just seven Gems *Orthonama obstipata* were recorded, but it was a magnificent year for Vestals *Rhodometra sacraria*, with 77 between 22 June and 6 October. Eight recorded on 26 August was a good total, but did not prepare me for the 31 which surrounded the trap the following morning. Twenty-one were recorded on 28 August, but numbers dropped back down to four the next night. Although the totals of White-speck *Mythimna unipuncta* were low compared to other sites with only nine recorded, 35 Small Mottled Willow *Spodoptera exigua* was a good number for the south-east with records between 20 June and 8 September. Small numbers of both Scarce Bordered Straw *Heliothis armigera* and Bordered Straw *H. peltigera* were trapped, but it was a poor year for Silver Y *Autographa gamma*, with just 473 between 23 March and 15 October, and with a maximum of only 24 on 25 June.

The two migrant highlights were a rather worn Great Brocade *Eurois occulta* on 7 August and an immaculate Dewick's Plusia *Macdunnoughia confusa* on 8 October – the third record for Sussex. – SARAH PATTON, Eastern Cottage, 2 Watery Lane, Kingsham, Chichester, West Sussex PO19 2XH.

A purple hairstreak down at ground level

Although reputedly the most widespread and abundant of the hairstreaks, at least in the London area, this butterfly remains particularly elusive, partly because of its high-flying habits. I was pleased, therefore, to be able to photograph this delightful butterfly at close quarters when it finally came down to earth.

On 1 July 1999, I was part of a small team surveying a steep wooded railway embankment at Ealing Broadway, Middlesex (grid reference TQ 186810, VC 21), for London Underground. Just as we were about to leave the site, a small grey butterfly fluttered down and landed briefly on a colleague's fluorescent orange, high-visibility jacket. It was a purple hairstreak. Within a few seconds, it had fluttered off and landed on the gravel ballast of the adjacent track. Although it was only a few inches from the rails, I managed to take a few photographs. It was remarkably camouflaged against the grey granite ballast. It remained settled for several minutes, and was not disturbed by a train passing virtually above it. Eventually, after a few more minutes, the butterfly took off and disappeared over the tops of the small oak trees growing up the embankment.

The weather was overcast and blustery, but not cold, so I found this close encounter very strange.— RICHARD A. JONES, 135 Friern Road, East Dulwich, London SE22 0AZ (E-mail: bugmanjones@hotmail.com).

Red-necked Footman *Atolmis rubricollis* (L.) (Lep.: Arctiidae) in Lancashire

The year 2000 was memorable for many species of migrant moth rarely seen this far north, but one night in particular stood head-and-shoulders above the rest. Permission had been obtained, from the Sefton Council Coastal Ranger Service, to study Lepidoptera on the Formby sand dune system and, on 19 June 2000, a small group of members of the Lancashire Moth Group ventured forth primarily to check for the presence of some of the less common inhabitants of this threatened habitat.

As it transpired we had, by pure coincidence, picked probably the best night for migration into or through the county during 2000. Ray Banks, Hannah Barlow, Graham Jones, Paul Pugh and myself set up our lights at about 10 pm, bathing quite a large area of the southern dunes in an eerie blue-white glow, and within a short period of time moths were being attracted to the traps and sheets in considerable numbers. The resident species were well-represented including large numbers (in excess of forty each) of the commoner Hawk-moths such as Eyed *Smerinthus ocellata* (L.), Elephant *Deilephila elpenor* (L.) and Small Elephant *D. porcellus* (L.), plus a few Lime *Mimas tiliae* (L.). Also apparent were considerable numbers of the Diamond-back Moth *Plutella xylostella* (L.), later estimated to be in excess of 500, and smaller numbers of Rush Veneer *Nomophila noctuella* (D. & S.) and Rusty-dot Pearl *Udea ferrugalis* (Hb.).

Frustratingly, I happened to be on a very early start for work the following day, so by 2 am I dragged myself away and slept fitfully, dreaming of all the unusual moths that the remaining group would be examining on their dew-dampened sheets. A phone call later on that day confirmed my worst nightmares with Vestal *Rhodometra sacraria* (L.), Dark Sword-grass *Agrotis ipsilon* (Hufn.) and Bordered Straw *Heliothis peltigera* (D. & S.) all being added to the list.

Of most interest, however, was a Red-necked Footman, found on the ground alongside one of the Skinner traps as it was being dismantled, with dawn fast approaching. This species is virtually unheard of in Lancashire, the last known record being from the north of the county in 1986. Arriving at the same time as the migrants, and bearing in mind the record of this species reported as a possible migrant in Essex two days earlier, on 17 June 2000 by Firmin (2000, *Ent. Rec.* **112**: 270), it is tempting to suggest this moth may have arrived from further afield.

What is even more intriguing is that within a day or so of this eventful night, I heard from Rob Petley-Jones, the manager of Gait Barrows National Nature Reserve in the north of the county, that he had observed a Red-necked Footman in flight during a sunny morning on 10 June 2000. Surely it must be more than coincidence that, after a fourteen-year gap, this moth is reported from two well-separated parts of Lancashire within a week and a half of each other.

I would like to thank John Grimuskaus of the Sefton Ranger Service for permission to study Lepidoptera on the Formby dunes and to Rob Petley-Jones for passing on information of his find and allowing me to report it here.
– STEPHEN PALMER, 137 Lightfoot Lane, Fulwood, Preston, Lancashire PR4 0AH (E-mail: Palmer01@genie.co.uk).

A recent record of *Anomoia purmunda* (Harris) (Dipt.: Tephritidae) from Scotland

On the 12 August 2000, I swept a male and a female *A. purmunda* from tall herbs and bushes in a hedgerow by the Braid Burn in the Hermitage of Braid in Edinburgh (grid reference NT 260701, Vice-county 83). This species has a particularly distinctive and striking pattern on the wings, which attracted my attention in the net. White (1988, *Tephritid Flies* Diptera: Tephritidae. *Handbk Ident. Br. Insects* **10**(5a): 1-134) gives an old record for Inverness. Clemons (1996, A provisional atlas of the Tephritidae (Diptera) of Britain and Ireland. *British Tephritidae Newsletter* No. 6) provides a distribution map of the species which shows records mainly occurring south of a line from the Humber to the north Wales coast. To the north of this line there are only two isolated, old (pre-1970) records in northern Scotland (in the region of Strathspey).

There are no specimens of this species from Scotland in the collections of the National Museums of Scotland (NMS). However, the following records from England from NMS specimens may be of interest. These are two males and two females bred in June 1939 from berries of a "crateigi", presumably referring to a *Crataegus* sp., from Norwood in south-east London by S. Wakely (collection of R. C. Faris). There are also specimens from Bromley in Kent and Anglesey.

White (*loc. cit.*) states that "larvae of British *A. purmunda* usually feed in the fruits of hawthorn (*Crataegus* spp.), but this fly has also been reared from a number of garden shrubs of the families Rosaceae and Berberidaceae". *Crataegus monogyna* Jacq. is abundant in hedgerows along the Braid Burn.

I am grateful to Keith Bland for access to the collections and the Scottish Insects Record Index at the NMS.—DAVID HORSFIELD, 131 Comiston Road, Edinburgh EH10 6AQ.

***Bruchus rufipes* Herbst (Col.: Bruchidae): a warning to users of "Joy"**

Since N. H. Joy's *Practical Handbook of British Beetles* (1932) may still be widely used for determinations, a cautionary word is in order concerning the above species with which Joy seems not to have been familiar, despite its being rather common (possibly less so in his day?). His colour-description of *B. rufipes* verges on the fantastic: "Reddish, normally completely covered with a pattern of white and yellow pubescence". In fact *B. rufipes* is black with the scattered patches of elytral pubescence all white, just as in *B. atomarius* (L.). A very thorough and detailed account of, and key to, the British Bruchidae will be found in *The Coleopterist* 9(3): 133-147, by Dr M. L. Cox.—A. A. ALLEN, 49 Montcalm Road, Charlton, London SE7 8QG.

***Cydia amplana* (Hubner) (Lep.: Tortricidae) in Hampshire**

A female *Cydia amplana* came to mercury vaour light at my garden on the night of 19-20 August 1997. This is a species of moth new to Hampshire, and I thank Dr J. R. Langmaid for confirming the identification.

The species is not figured in *British Tortricoid Moths*, nor in any British literature that I know of. It may, therefore, be worth mentioning that this is a medium-large tortricoid, just a little smaller than *Epinotia solandriana* (L.), and of a similar background colour to the common form of that species. It also has a white costal blotch, but this is not quite the sub-quadrate blotch of *solandriana*, and along its outer edge it has noticeable black shading. The male genitalia are figured in Chambon (1999. *Atlas des genitalia males des Lépidoptères Tortricidae*. Institut National de la Recherche Agronomique, Paris: drawing number 2400).—RICHARD DICKSON, 39 Serpentine Road, Fareham, Hampshire PO16 7ED.

Some moth conservation news updates

The following is a collection of news updates on some of the UK Biodiversity Action Plan Priority Species projects with which I am currently involved. These are projects for Butterfly Conservation and English Nature.

BARBERRY CARPET *Pareulype berberata* (D.& S.) – Conservation measures for this moth have been underway, on and off, ever since the 1970s, when the only population then known was threatened by road-building proposals. The moth has been the subject of a full English Nature Species Recovery Project since 1995. For a full account see the February 2000 issue of *British Wildlife* magazine (Vol. 11, issue 3). Some of the major activities during 2000 have included monitoring all the known colonies, of which there are now eight with positive records from the last two years (mainly in Wiltshire, but one each in Gloucestershire and Dorset), searches of former sites (in Suffolk and Hampshire), site visits with landowners to discuss and arrange management of the Barberry hedges and bushes on which the caterpillars feed and searches for larvae in places where mature Barberry stands have been reported. This year we covered five more localities in Gloucestershire, one more in Wiltshire, two in Nottinghamshire, one in Northamptonshire, two in Oxfordshire, one in Bedfordshire, two in Essex, one in Sussex, one in Devon and one on the Isle of Wight. Unfortunately, all these larval searches for undiscovered colonies produced negative results except for the site in Wiltshire, showing that sites where Barberry still survives within the former range of the moth do not necessarily support the moth. We now have a substantial list of sites with Barberry that lack the moth, for whatever reason, and some have potential for establishment trials.

At the new Wiltshire site the translocation is planned of some bushes that were due to be uprooted during the winter of 1999/2000 to allow gravel extraction. We successfully obtained a postponement of the uprooting by one year to allow searches for larvae during both the generations in 2000. There were no previous records of the moth from the site and the bushes were only discovered in 1999. We found six larvae on the threatened bushes in the first generation (19 June) and nine larvae on 31 August. Because the bushes will definitely be removed during the winter of 2000/2001, the larvae were collected up for rearing and to provide a captive stock for use at the translocation site. Most interestingly, one of the first generation produced a parasitoid, a small black wasp with yellowish legs, as did three of the second-generation larvae. This is almost certainly the first documented case of parasitism of Barberry Carpet larvae, at least in recent decades. The wasps are now with specialists. It appears that those reared from the second generation are of an undescribed *Diadegma* species (Ichneumonidae: Campopleginae), very close to *D. armillatum* (Gravenhorst) (det. Klaus Horstmann, with thanks also to Mark Shaw). Although unnamed, this is probably a widespread parasitoid which attacks other species of moth larvae, based on the knowledge

of closely related species, some of which have been reared from other geometrid moths.

The establishment trial which has been running for the last two years in South Wiltshire has done very well this year, with good numbers of moths and larvae seen in the wild and colonisation of additional bushes. A new generation of larvae was present at the establishment trial in rural Northamptonshire, but none were found at the urban trial site just a few miles away, nor at the Lincolnshire trial site. Top-up releases of larvae took place at these sites. Two further establishment trials were initiated during the year, one in Suffolk and the other in Bedfordshire.

BLACK-VEINED MOTH *Siona lineata* (Scop.) – The four known populations of the Black-veined moth (all in Kent), are monitored annually. In 2000, the numbers of adult moths at one of these were the highest (with 1999) since counts began in the mid 1970s. This is due to the sympathetic conservation management the site has received in recent years, mostly by cutting and raking, with some grazing. Conversely, numbers on a National Nature Reserve are well below levels recorded over the same time period. This is also directly related to management practices. Key parts of the site have been overgrazed for several years running in spite of advice from the Species Recovery Project and the former site manager. This moth requires a calcareous grassland sward 10-25 cm in length with an abundance of herbs in almost every pace, such as Marjoram, a favourite larval foodplant. Also, the moth is particularly adversely affected by spring grazing, because this can lead to the removal of, or to a great reduction in, the herbs needed by the overwintered larvae for food prior to the spinning of cocoons in late April and early May. Major parts of the site have been overgrazed to the extent that larval food was diminished and grass cover for larvae and cocoons almost completely removed. Better management has been promised for the coming year. At the other two sites, both in private ownership, numbers have declined to some extent over the last two years, but the swards are now being managed sensitively, without grazing. Four other potential sites for the Black-veined Moth were searched during the year, with negative results.

Special news in 2000 is that another small site appears to have been colonised by moths from the above populations. This site has been inspected almost annually since 1987, without seeing any Black-veined Moths, but in 2000 fresh males were flushed from the grass, one on the first occasion and two a few days later, suggesting they had emerged on site. They are less than a mile from another rough downland site on which a single moth was seen for the first time in 1999. The latter was searched again this year, with negative results. One of the four current colonies is the result of documented colonisation since 1996. Hopefully, the species will persist on this potential fifth site, though we have doubts as to whether the site is big enough to support a self-sustaining population. We await the season of 2001 with great

interest. Suitable chalk grassland swards are being restored on several nearby sites, most under the Countryside Stewardship Scheme and one by the Kent Wildlife Trust, and it is hoped that these might support additional colonies of the moth in due course.

An experiment to investigate larval survival rates in net cages at one of the occupied sites was completed in 2000. This showed that of one hundred eggs placed in one cage, on the grass stems on which they were laid, only two larvae survived to the winter and both had disappeared by the spring. A freshly-mated, fertile female placed in the other cage resulted in three larvae surviving to the winter and these too had disappeared by the spring. This confirms previous observations that larval mortality is frequently high, which is perhaps to be expected because females are capable of laying 250-300 eggs. These results have important implications in trying to decide the numbers of eggs or larvae that might be needed for releases to establish new colonies.

REDDISH BUFF *Acosmetia caliginosa* (Hb.) – The Reddish Buff continues to thrive at its single surviving native locality, on the Isle of Wight, from which it would almost certainly have been lost were it not for the management work carried out over the last decade as part of the English Nature Species Recovery Project. Work continues each winter to clear back or keep in check the scrub, which would otherwise encroach and smother the open heathy swards in which Saw-wort *Serratula tinctoria*, the larval foodplant, grows in abundance. Work continues to extend and restore small patches of adjacent habitat into which the moth can spread. In 2000 the adult moth was seen on a number of occasions by day, in addition to those seen in the light-traps, and its behaviour was filmed for the first time.

Because the moth has been reduced to a single locality in Britain, attempts to establish additional colonies within the former range of the moth are a major part of the Species Recovery Project. Three establishment trials are currently underway, two on the Isle of Wight and one in Hampshire and we have one more site on the island and two more in Hampshire that are ready for releases of larvae or adult moths. Unfortunately, the numbers of larvae produced in captivity in 2000 were insufficient for initiation of new trials or top-up releases. Monitoring suggests that numbers have also dwindled on the establishment sites. Although adults were light-trapped at both establishment sites on the Isle of Wight in 1999, none could be found with a similar level of search effort in 2000. The mainland site has produced a blank result for the second year running, in spite of up to eight light-trapping visits per year and some searches for larvae. It is now fair to assume that the moth has died out at the latter. In spite of some management problems in keeping the sward in ideal condition, there are good reasons for believing that this site can support a population of the Reddish Buff. Initial results during the first two years of this latest release were good, but a series of years of indifferent weather during

the flight period in late May and early June appear to have prevented numbers building up. I believe further releases into more favourable conditions could lead to a successful establishment on this site yet, but with limited supplies of captive larvae, other sites may be trialed first.

BRIGHT WAVE *Idaea ochrata cantiata* Prout – Survey work during the last two years indicates that the Bright Wave is almost certainly confined to a single locality in Britain now. The former sites in Suffolk and Essex have produced negative results for a number of years and must be considered lost. However, the status of the moth at the remaining locality, between Sandwich and Deal in Kent, has proved to be stronger than it appeared before the fieldwork carried out for the UK BAP project. Although recent records of the moth had tended to come from one easily accessible piece of ground, by exploring private land with the owners' permissions, the moth has been confirmed to occur on four different ownerships covering an eight kilometre length of the coast. Within this, the moth occurs in a recognisable type of sward represented extensively in the roughs of the links golf courses in this area. The moth is absent further inland where the sward has been grazed, fertilised and otherwise agriculturally improved and is not common and hardly breeding on the seaward side where the turf gives way to large expanses of bare sand and shingle, though adult moths sometimes wander or are blown into this area. Revealingly, the moth also appears to be absent from parts of a nature reserve where the sward has a promising botanical composition but is heavily grazed during the winter. The larvae overwinter and have been found near the ground on leguminous foodplants, but may be unable to survive the winter if grazing is heavy. Not one of the places where the moth is frequent is grazed.

The adult numbers of the Bright Wave are now monitored by four transect walks, three of which have been set up specifically for the moth in the two years of the BAP project. Numbers seen in 2000 were of the same order as in 1999, so the population may prove to be stable at this site at present. An illustrated leaflet has been prepared and distributed to the site owners, to introduce the moth and explain its habitat requirements. Management plans have been discussed with the owners and will be kept under review for as long as the project lasts.

The search area for undiscovered colonies of the Bright Wave was extended in 2000 and sites considered particularly promising in 1999 were revisited. Particular attention was paid to links golf courses, which the golfers themselves considered similar to the occupied sites. The northernmost visited were Brancaster and Hunstanton on the north coast of Norfolk and Skegness in Lincolnshire, and the southernmost was Rye, Sussex. However, the Bright Wave was seen at none of these, in spite of some good weather for daytime searches. Some of these sites may be considered for establishment trials when they have been sufficiently searched to be sure the moth is not present and

when the appropriate arrangements have been agreed with the landowners. The indications are that establishment trials by translocation of adults may be quite successful, based on results in captivity, and that the numbers of adults at the occupied sites are sufficient to withstand removal of the numbers necessary to initiate trials.

WHITE-SPOTTED PINION *Cosmia diffinis* (L.) – The year 2000 was the first year of work on this moth as part of the UK BAP project. This elm-dependent moth formerly was widely distributed throughout England north to the Mersey, south Cumbria and the Humber, with a scattering of records in Wales. Since the ravages of Dutch elm disease in the 1970s, the moth has undergone a massive decline and now the only part of the country in which it is being found reliably is in Huntingdonshire and Cambridgeshire. Occasional recent records from elsewhere suggest it still survives very locally in other parts of its former distribution, however. More about the moth, its status and techniques for locating it can be found in an article recently published in *Atropos* **10**: 5-9. The aim of the BAP project is to investigate the ecological requirements of the moth and its larvae and to extend the search out from the half dozen known sites to other nearby woods with elm, many of which have never been examined, and to woods further afield. In fact, by kind arrangement with the organisers, National Moth Night for 2001 will be held on 11 August, a date chosen with this moth in mind, and we shall be encouraging participants throughout Britain to set up lights under their local elms. Potentially we could learn a great deal about the current national distribution of this moth from this one night. During 2000, we light-trapped adult moths at all but one of the known sites in Huntingdonshire and in two new sites nearby, but numbers per trap were small in comparison to some recent years. In view of earlier larval work during May and June, this was not a surprise and probably relates to the changeable and often dull wet weather at this time. An important part of the project is to find out the extent to which larvae may be limited to the foliage of epicormic growth (side-shoots) on the trunks of mature trees, as reported in Haggett (1981. *The larvae of British Lepidoptera not illustrated by Buckler*. BENHS). If the moth requires such growth, opportunities in Britain are presently very limited. In recent years, adult moths have occurred in light-traps in Huntingdonshire woods without such elms, suggesting the moth may be less discriminating. However, in 2000 we were unable to find a single larva in the woodland which produces the largest catches of adults, even though searches took place on 22 May, 5 and 10 June and involved several of us beating, both from the ground and up to five metres above it using ladders, as well as searching by hand. What also became apparent was the number of other insects which produce similar spinnings between elm leaves. On 28 May PW found a single young larva, in a spinning on the epicormic growth of tall elms planted as a shelterbelt several trees deep, between a road and a cattle field. This was the only larva found by

the members of the Huntingdonshire Moth and Butterfly Group in 2000 and it later produced a parasitoid. This little wasp has been sent to Mark Shaw in the National Museum of Scotland, for identification. We shall hope for a better larval season in 2001.

FOUR-SPOTTED *Tyta luctuosa* (D.& S.) – The Four-spotted moth appears to require sunny, hot, dry habitats in which the larval foodplant, Field Bindweed *Convolvulus arvensis*, grows through a sparse sward or on almost bare ground. The moth has been in decline since the early 1950s, with evidence of an earlier decline at the end of the nineteenth century, the most probable causes being intensification of agricultural methods and other changes in land management. Climatic deterioration to milder, wetter weather and nitrate deposition from the air have also been implicated, both leading to coarser, more vigorous and cooler swards. Some breeding sites have definitely deteriorated in the last few years as a result of lack of grazing or disturbance, leading to longer grass and scrub encroachment. Recent records suggest the decline is continuing. The former range of the moth extends from the south coast of England to a line running from the Severn to just north of the Wash. Since 1980, the moth has been reported from a variety of locations scattered through this area, and even once from Durham, but almost always as singletons, most frequently in light-traps, but occasionally by day. Usually any colonies from which they might come have not been located. Breeding areas where the moths can be seen reliably and in numbers are now a rarity. The Isle of Portland, Dorset, is the best known and the moth continues to be recorded annually in the light-trap operated by Martin Cade at Portland Bill Bird Observatory, though numbers noted in 2000 were small. An indication that all is not well with the moth on Portland is that relatively few are now seen along the footpaths around the edges of the farm fields near the observatory. When these were farmed for cereal crops until a few years ago, the Bindweed sprawled along the field edges and the moth was frequently seen by day. Recently the farmer has abandoned cereals for cattle, which have grazed the sward flat to the ground in these rather poor fields and the breeding opportunities for the moth are much reduced. PW and Mark Parsons visited the area with Martin on 3 August 2000 as part of a newly begun BAP project on this moth, and familiarised ourselves with the situation. We saw only one moth all day. Significantly it was nectaring at Bindweed flowers in an ungrazed field margin along a fenceline. As it turned out, the emergence of the second generation in 2000 was poor, probably because the development of the first generation was protracted by changeable weather. But even if the weather had been better, it was clear from Martin's recollections that the likely breeding areas are now greatly reduced. We searched other parts of Portland for promising habitat and found a number of likely areas, including one of the Butterfly Conservation nature reserves, and have resolved that these should be inspected during the flight season of the first generation in 2001, when

hopefully there will be a few more moths about by day. Received wisdom has it that the second generation is normally the stronger on Portland, however. We investigated a number of the quarries on the east side of Portland, where the Four-spotted has been seen in the last twenty years, sometimes in numbers. We made the observation that the Field Bindweed is actually very rare in the bottoms of the quarries, where there is virtually no soil. It is often frequent on the lips of the quarries, amidst broken ground and this is presumably where the moth breeds.

During this first year of the Four-spotted project, three other areas of work have begun. The first is the intensive monitoring and study of probably the single largest remaining population of the moth in Britain, at a site near Peterborough. Second, visits have been made to start to document the current condition of the other known breeding areas. Thirdly, efforts to update the national database of records of the Four-spotted and to promote better recording of the moth have been initiated. Illustrated articles are being written to raise interest in the moth. The first of these, in the *British Wildlife* moth report (11: 439-440 for August 2000) has resulted in two sites to investigate in 2001 and several recent records of singletons being sent in by readers. Weekly transect counts at the Peterborough site have helped to clarify the best dates to search elsewhere for the moth and demonstrated that the moth fielded only a very partial second generation at this location in 2000. Favoured nectar plants, characteristics of the habitat where the moths were most frequently seen and responses to different weather and survey conditions have all been documented. In the second week in July, just when searches for larvae were about to take place, and captive larvae were nearly fully grown, the main dyke bank, where most adults had been seen, was scraped clear of vegetation by the Environment Agency in a dyke clearance operation. This removed most probably all the larvae from the bank. A few shoots of Field Bindweed remained, on which any fallen larvae could have fed, and after a week or so, new growth of Bindweed was evident. If the scraping had been a fortnight later, after pupation in the soil, the survival of this generation would probably have been much higher. Subsequently only one adult of the second generation was seen, on 28 July. While catastrophic in the short-term, I believe it is the scraping operation which maintains the suitability of the site in the long-term. The sward would otherwise become too rank, as it has on the unscraped side of the dyke. It appears that the moth is able to survive the scraping operation because it also breeds along the top of the bank and by an adjacent railwayline, from which it is able to recolonise the scraped area as the vegetation recovers. Subsequent discussions with the Environment Agency have established that the scrape is annual and takes place any time from July to September. The Environment Agency are happy to wait until August to scrape it in 2001 and this actually suits them better. We propose to monitor the response of the moth population before and after the later scrape next year.

Visits were made to a disused railway cutting in Nottinghamshire which was notified as a SSSI in the late 1980s on account of the population of the Four-spotted moth it supported. The moth appears to have been lost from this site in the last few years, though a small population has since been found a little further up the same line. The vegetation on the site has been allowed to become much more rank than when PW visited it some ten years ago and this year there was standing water in the cutting when PW visited on 28 June. This site would also benefit from scraping of the vegetation from part of the south-facing bank, which last took place over ten years ago.

On 8 August 2000, site visits were also made to four sites in Lincolnshire, from three of which there are recent records of the moth, though the moth probably only breeds at one. This latter was interesting in demonstrating the sort of habitat which possibly supported many colonies of the moth before the last war, but which has all but disappeared now. The site was a steep south-facing calcareous bank, lightly grazed by cattle which were present on the date of the visit. No fertilisers had been applied and a management agreement is in place with English Nature because of botanical interest. Field Bindweed grows as small plants in the majority of places across the sparse sward on the site, but in much greater quantity just outside the fence. Hopefully the site can be visited at the peak of the first generation in 2001 to measure the densities at which the moth currently occurs on this site.

MARSH MOTH *Athetis pallustris* Hb. – The Marsh moth is best-known as an insect which used to be found in the Huntingdonshire and Cambridgeshire Fens at Wood Walton, Holme and Chippenham, though searches over the last thirty years indicate that it has disappeared from all three, probably as a result both of flooding and the growth of carr woodland. Though called the Marsh Moth, it appears to prefer the drier margins of wet areas which are open but do not have standing water, so it can be squeezed out if the area of wetland or carr woodland increases. The caterpillars feed on the leaves of plantains, Meadowsweet and probably other plants growing in a fairly sparse sward. There are also reliable old records from Cumbria, Yorkshire, Hampshire, Norfolk and Suffolk, and later the moth was discovered in two places on the Lincolnshire coast, where it still survives. The distribution and numbers of caterpillars at one of these Lincolnshire sites have been monitored annually since 1988 using what is known as the “litter-pile” technique, which was developed in the 1930s at Wood Walton Fen and remains the most effective method of monitoring the breeding success of this moth. This involves the site manager leaving small piles of cut vegetation when the sward is cut any time from late July to October. The larvae seem to like the microclimate in such piles and congregate to feed on growing Plantain leaves under the piles. They can be found and counted by lifting and sieving the piles two to three weeks or more after they have been made. I find the almost fully grown caterpillars

are usually near ground level by day. They remain active and feeding on the leaves until at least November. In 2000, the litter-pile technique was tried at the second Lincolnshire site, where the only records of the moth are of occasional adults at light traps over a wide area. The aim was to try and locate the breeding grounds. This year the results were blank, so in 2001 we shall aim to increase the number and distribution of both light-traps and litter-piles to detect the moth.

It is much less well known that the Marsh Moth was recorded in two inland sites in Lincolnshire in the 1970s, though neither appears to have been investigated more recently. As part of the BAP project, light-traps were operated at both on 13 June 2000 and a return visit was made to the most promising one on the milder night of 27 June 2000. No Marsh moth were seen on either occasion, but only one was seen the previous night (12 June) at the best coastal site and it was in very fresh condition, suggesting that the moths flew late this year. Very interestingly, two immaculate Sand Dart were light-trapped on the second visit (27 June). Either these represent a previously undiscovered inland colony or show that moths are wandering from the more typical coastal breeding areas. Parts of the site are sandy, so breeding is a possibility. Significantly, the Sand Dart occurs at both the coastal Marsh moth sites, so could the Marsh moths recorded here in the 1970s have been wanderers likewise? In fact only four moths were captured in the 1970s, all by Rick Pilcher, on 13 and 16 June 1970, 6 June 1971 and either 15 or 17 June 1973, in spite of frequent light-trapping throughout each year at Rick's garden overlooking the marsh. The two species of moth are very different in flight and build, the Sand Dart being powerful and fast, the Marsh Moth rather slow and flappy, so perhaps a less likely candidate for long distance travel. We shall have to wait and see what further light-trapping in 2001 reveals. Unfortunately the local personnel were unable to arrange litter piles for sampling the inland sites in 2000, despite badgering from PW, but have promised to do so in 2001.

I am most grateful for the help and cooperation of a great many organisations and individuals in my work on the UK Biodiversity Action Plan Priority Species projects. The organisations include: the various offices of English Nature, Interreg, the Hampshire & Isle of Wight Wildlife Trust, the Kent Wildlife Trust, Wiltshire Wildlife Trust, the Lincolnshire Wildlife Trust, the Gloucestershire Biodiversity Partnership, Writtle College, Cotswold Water Park, the Environment Agency, Portland Bill Bird Observatory, Sandwich Bay Bird Observatory, the Grimthorpe Estate, the Kentish Stour Countryside Project, Hampshire County Council, the Wight Volunteers and the Huntingdonshire Moth and Butterfly Group. I also thank the various private land owners, our team of captive breeders, and Martin Cade, John Chainey, Barry Dickerson, David Evans, John Greerson, Phil Porter, Mark Shaw, Tony Smith, Mark Tunmore, Claire and Graham Weaver and Allen Williams.— PAUL WARING, 1366 Lincoln Road, Werrington, Peterborough, PE4 6LS (Email: paul_waring@btinternet.com).

More on *Oedemera* spp. (Col.: Oedemeridae)

Since there have been four contributions in our pages on this subject – one of them by me – I hesitate to add to them, but a few further points may be made. In my experience, whereas *O. nobilis* is now clearly nowhere near to being as general in south-eastern England as it seems to have been in former times, the supposedly local *O. lurida* has for long – at least since the later 1930s – been common over at least the London and probably all the south-eastern districts. It occurs even in the rougher suburban gardens, but a favourite habitat is a field-edge or wayside where yellow-flowered composites of the cat's-ear or hawkbit type (in whose stems, I suspect, the larvae develop) grow freely. But in the south-west, where *nobilis* can be common along hedgerows on umbellifers, I have not seen *lurida*, though it probably occurs.

I would here emphasise the part played by long-term fluctuations in frequency or abundance of a species. Such population changes over time are common among insects, but their causes are seldom clear. When of long duration, they probably account for the discrepancy often noted between present overall frequency and the indications given in the older books. I suggest we may have an example here, and that in the 19th century *Oedemera nobilis* really *was* commoner and less local and *O. lurida* less common or more local, than is the case today. The very recent increase or spread of the former in these parts may be a short-term phenomenon; it is far too early to say. – A. A. ALLEN, 49 Montcalm Road, Charlton, London SE7 8QG.

***Gastrophysa viridula* Degeer (Col.: Chrysomelidae) new to West Sussex**

Although *Gastrophysa viridula* is common throughout much of England and Wales, this distinctive little leaf-beetle is virtually absent from the south-east. It occurs sporadically in Surrey, vice-county 17. Although it is common at Wisley, grid reference TQ 0658 (A. Salisbury, pers. comm.), it is rare at the very well recorded Bookham Common, TQ 1256 (M. Barclay, pers. comm.). In Kent, it was recorded from the Medway Valley, near Snodland, during the 1890s by J. J. Walker and recorded so in Fowler's 1908 list in the *Victoria County History*. It was not recorded there again until 1982, when Chuter found it at Headcorn, TQ 8244 (*Coleopterist* 9: 42-43), and it has since been found in the same river valley, at TQ 8443, in 1997 (E. Philp, pers. comm.)

It was discovered new to East Sussex, vice-county 14, when I swept a single specimen from redshanks *Polygonum maculosa* (= *P. persicariae*), at the edge of the Lewes Levels, TQ 4109, on 10.vi.1975. A small colony was also present at Powdermill Reservoir, TQ 7919/8019, during the 1990s (N. Heal, P. J. Hodge, R. Booth). I was surprised, therefore, to find two specimens in the collection of my father, A. W. Jones, recently. They were both swept in a marshy clearing, north of North East Hook Wood, Coldwaltham, West Sussex, TQ 016178, on 29.v.1999. This is apparently the first record for vice-county 13. – RICHARD A. JONES, 135 Friern Road, East Dulwich, London SE22 0AZ (E-mail: bugmanjones@hotmail.com).

PEYERIMHOFFINA GRACILIS
(SCHNEIDER, 1851) (NEUR.: CHRYSOPIDAE):
A GREEN LACEWING NEW TO BRITAIN

BART DONATO¹, STEPHEN J. BROOKS², JOHN A. PICKETT³ AND JIM HARDIE¹

¹*Aphid Biology Group, Department of Biology, Imperial College at Silwood Park,
Ascot, Berkshire SL5 7PY.*

²*Department of Entomology, The Natural History Museum, Cromwell Road, London SW7 5BD.*

³*IACR-Rothamsted, Harpenden, Hertfordshire AL5 2JQ.*

THERE ARE CURRENTLY 66 species of Neuroptera recorded from the British Isles. Of these, eight species (12% of the British fauna) have been recorded for the first time in Britain since 1988 (Plant, 1997). In part, this plethora of new records is due to a recent upsurge of interest in the group following the launch of the Neuroptera Recording Scheme in 1988. This has resulted in the discovery of at least four species that were probably previously overlooked residents. However, it is thought that two additional species are probably recent colonists to this country (Plant, 1997).

Green lacewings (Chrysopidae) is one of the largest neuropteran families and Plant (1997) listed 19 species from Britain, two of which (*Cunctochrysa bellifontensis* Leraut and *Nineta inpunctata* (Reuter)) have been recorded for the first time in Britain since 1993. Chrysopids occur in a wide variety of biotopes including dune systems, grasslands, scrub, gardens, and deciduous and coniferous woodlands. The larvae are predaceous, feeding on soft-bodied insects, such as aphids, coccids and lepidopteran eggs and larvae, which they encounter whilst foraging on foliage. As adults, most chrysopids feed on honey-dew, nectar or pollen, but species in the genera *Chrysopa* and *Nineta* are insectivores. Most species are attracted to light, but some are best collected by beating foliage. A few, such as *Nothochrysa capitata* (Fabricius) live in the canopy of oak trees and so are collected infrequently, although in fact they may be locally common (Barnard *et al.*, 1986).

During September 1999, a series of water traps releasing the two aphid sex-pheromone compounds (4a*S*,7*S*,7a*R*)-nepetalactone and (1*R*,4a*S*,7*S*,7a*R*)-nepetalactol (see Hardie *et al.*, 1999) were set up to capture male aphids as part of an on-going study at Silwood Park, near Ascot, Berkshire, UK (51°25'N: 1°19'W). The water traps were made from clear plastic 14 centimetre Petri dishes, mounted on 1.1 metre poles and filled with a clear, odourless, detergent solution (Hardie *et al.*, 1991). They were situated in sheltered, but open positions close to the edge of mature deciduous woodland consisting primarily of oak *Quercus robur*, but including hawthorn *Crataegus monogyna*, field maple *Acer campestre* and spindle *Euonymus europaeus* as well as Scots pine *Pinus sylvestris* and Cupressocyparis *x leylandii*. Amongst the insects collected in the traps were 39 adult male green lacewings. At first sight these appeared to be a species of *Chrysoperla* but they could not be

keyed out satisfactorily in Plant (1997). Comparison with descriptions in Aspöck *et al.* (1980), Brooks & Barnard (1990) and with specimens in the Neuroptera collections of The Natural History Museum, London, showed that they were *Peyerimhoffina gracilis* (Schneider) (formerly in the genus *Tjederina*). Subsequent trapping during May-December 2000 recorded adult *P. gracilis* between 12 June and 15 October, with further trapping during February 2001 producing over-wintered adults from 12 February onwards.

Distribution and biology

Peyerimhoffina gracilis has a distinctly circum-Mediterranean and eastern European distribution. The species occurs in the Pyrenees, southern and eastern France, central and eastern Germany, Switzerland, Austria, Hungary, Romania, Ukraine, Corsica, southern Italy, Greece, Yugoslavia, north-west Turkey, Morocco, Algeria and Tunisia. The previous most northerly records were from the southern Netherlands (Lacroix, 1920; Aspöck *et al.*, 1980). *Peyerimhoffina gracilis* typically occurs in relict pine forests with fir *Abies numidica*, spruce *Picea abies* and Scots pine at altitudes between 100-1600 m. In Spain it has been recorded from silver fir *Abies alba*, Scots pine *Pinus sylvestris* and holly *Ilex aquifolium* (Montserrat & Marin, 1994). Adults occur between February and December and the insect over-winters in the adult stage. There may be one or two generations per year (Lacroix, 1920; Zelený, 1984). Eggs are laid solitarily (Gepp, 1984).

Peyerimhoffina gracilis seems to be well established at Silwood Park, since it was recorded at seven separate sites sampled during 2000, although the plants with which it is usually associated are not particularly common there. It also appears to be a fairly recent colonist since the Neuroptera of Silwood Park are thought to be fairly well known. Hollier & Belshaw (1992; 1993) failed to record it at Silwood Park and their specimens have recently been re-examined by Colin Plant, however it was also absent from terrestrial Malaise traps set near the study sites during May and June 2000. The species may have been introduced inadvertently into Britain with plants from Eastern Europe or the Mediterranean. There is also the possibility that the species is a recent colonist, perhaps resulting from a northward range expansion in response to climatic warming similar to that of a number of other European insect species (Parmesan *et al.*, 1999; Burton, 2001). The presence of one specimen of *P. gracilis* in a suction trap, positioned at a height of 12 metres and in open grassland 100 metres from woodland edge on 10 September 2000 at Silwood Park, suggests that the species may be fairly mobile. However, Duelli (1984) suggests that since the species is usually only locally common it is unlikely to perform adaptive dispersal flights, so it might be expected to be a slow coloniser. The absence of records of such a distinctive species from museum collections of British Neuroptera suggests that the species is not a well-established, but over-looked, resident.

Identification

Peyerimhoffina gracilis is superficially similar to species of *Chrysoperla*, which also have narrow wings, but *P. gracilis* is smaller and more robust (Plate H). However, *P. gracilis* can be readily distinguished from *Chrysoperla* and all other green lacewings by two characters, which are apomorphic for the genus (Brooks & Barnard, 1990). In the forewing there are more crossveins in the inner gradate series than the outer (the gradates form a paired series of crossveins in the apical half of each wing), and in both sexes the tip of the abdomen (the ectoprocts) are acutely pointed. The genus includes two species (although *P. pudica* Lacroix is of doubtful validity), and appears to be closely related to *Chrysoperla* with which it shares narrow wings, a short intramedian cell and sinuous basal costal crossveins. Other characters, which distinguish the species from most other British chrysopids, are the lack of a basal dilation on the tarsal claw and the long, thickened, green or pale brown pterostigma.



Plate H. *Peyerimhoffina gracilis* (Schneider). Male.

Photograph © R. H. J. Verkerk

To identify *P. gracilis* correctly, the key to British Neuroptera (Plant, 1997, Key H, page 221 - 231), should be modified by adding a new couplet 3, on page 222:

3 Inner gradate series of fore wing with at least twice as many crossveins as in outer gradate series (usually 4 inner gradates; 2 outer gradates). Tip of abdomen acutely pointed..... *Peyerimhoffina gracilis*

— Inner gradate series of fore wing with fewer crossveins than in outer gradate series. Tip of abdomen rounded Old couplet 3

Diagnosis

Ground colour: green with black markings.

Head: broad black stripe on gena and lateral clypeus; red stripe between eye and base of antenna; maxillary and mandibular palp entirely black; scape (referred to as the first antennal segment in Plant, 1997) with narrow outer lateral stripe; second antennal segment with black ring; antenna shorter than fore wing, antennal segments green in basal half, black in distal half.

Thorax: median yellow stripe; dorsal setae short, dark.

Legs: unmarked; tarsal claw without basal dilation.

Fore wing: length 9-10 mm; narrow (length : breadth = 3.5-4.0 : 1); unmarked; costal area narrow at base; costal setae short, inclined apically; basal costal crossveins sinuous; stigma long, thickened, green or pale brown; intramedian cell (im) short, narrow, ovate; 1st Rs crossvein meets im at, or just basal to, or just proximal to, apex of cell; gradate crossveins in two parallel series; basal inner gradate meets the pseudomedian vein (Psm); at least twice as many inner gradates as outer gradates (usually 4 inner gradates and 2 outer gradates).

Abdomen: marked with yellow median stripe; setae black, short, sparse; apex acutely pointed. Male and female genitalia described and figured by Aspöck *et al.* (1980) and Brooks & Barnard (1990).

Larva: narrow, fusiform; thoracic and abdominal tubercles hardly developed; setae short; no debris carried (Gepp, 1983).

References

- Aspöck, H., Aspöck, U. & Hölzel, H., 1980. *Die Neuropteren Europas* Vol. 1 & 2. Krefeld: Goecke & Evers.
- Barnard, P.C., Brooks, S.J. & Stork, N.E., 1986. The seasonality and distribution of Neuroptera, Raphidioptera and Mecoptera on oaks in Richmond Park, Surrey, as revealed by insecticide knock-down sampling. *Journal of Natural History* **20**: 1321-1331.
- Brooks, S. J. & Barnard, P.C., 1990. The green lacewings (Neuroptera: Chrysopidae) of the world: a generic review. *Bulletin of the British Museum (Natural History). Entomology* **59**: 117-286.
- Burton J. F., 2001 The responses of European insects to climate change. *British Wildlife* **12**: 188-198.
- Duelli, P. 1984. Flight, dispersal and migration in Canard, M., Séméria, Y. & New, T.R. (eds) *Biology of Chrysopidae* pp. 110-116. Junk, The Hague.
- Gepp, J., 1983. Schlüssel zur Freilanddiagnose mitteleuropäisches Chrysopidenlarven (Neuroptera: Chrysopidae). *Mitteilungen Naturwissenschaftlichen Vereins für Steiermark* **113**: 101-132.
- , 1984. Morphology and anatomy of the preimaginal stages of Chrysopidae: a short survey in Canard, M., Séméria, Y. & New, T.R. (Eds) *Biology of Chrysopidae* pp. 9-19. Junk, The Hague.

- Hardie, J., Nottingham, S.F., Powell, W. & Wadhams, L.J., 1991. Synthetic sex pheromone lures female parasitoids. *Entomologia experimentalis et applicata* **61**: 97-99.
- Hardie, J., Pickett, J.A., Pow, E.M. & Smiley, D.W.M., 1999. Aphids in Hardie J. & Minks, A.K. (eds) *Pheromones of Non-Lepidopteran Insects*. pp. 227-250 CABI Publishing, Wallingford.
- Hollier, J.A. & Belshaw, R.D., 1992 Changes in Neuroptera assemblages in an old field succession in Southern Britain. *The Entomologist* **111**: 187-194.
- , 1993. Stratification and phenology of a woodland Neuroptera assemblage. *The Entomologist* **112**: 169-175.
- Lacroix, J.-L., 1920. Faune névroptérique de l'Algérie et de la Tunisie. II (1) Chrysopide nouveau. *Bulletin de la Société d'Histoire Naturelle de l'Afrique du Nord* **11**: 83-84.
- Montserrat, V.J. & Marin F. 1994. Plant substrate specificity of Iberian Chrysopidae. *Acta Oecologica* **15**: 119-131.
- Parmesan, C., Ryrholm, N., Stefanescu, C., Hill, J.K., Thomas, C.D., Descimon, H., Huntley, B., Kaila L., Kullberg, J., Tammaru, T., Tennent, W.J., Thomas, J.A. & Warren, M., 1999. Poleward shifts in geographical ranges of butterfly species associated with regional warming. *Nature* **399**: 579-583.
- Plant, C.W. 1997. A key to the adults of the British lacewings and their allies (Neuroptera, Megaloptera, Raphidioptera and Mecoptera). *Field Studies* **9**: 179-269.
- Zelený, J., 1984. Chrysopid occurrence in west palearctic temperate forests and derived biotopes in Canard, M., Séméria, Y. & New, T.R. (eds) *Biology of Chrysopidae* pp. 151-160. Junk, The Hague.

Parasitoid *Meteorus gyrator* (Thunb.) (Hym.: Braconidae: Meteorinae) reared from larva of the White-spotted Pinion moth *Cosmia diffinis* (L.)(Lep.: Noctuidae) in Cambridgeshire

On 28 May 2000, I found an early instar larva of the White-spotted Pinion moth *Cosmia diffinis* about 1 cm in length, while searching for spinings of this species among the leaves of epicormic growth in a stand of tall roadside elms *Ulmus* sp.. The trees were bordering a cattle field at Boxworth, Cambridgeshire, a site reported to me by John Chainey. The larva was just above head height, but within reach of the ground and the spinning was discovered by looking up into leaves at this height. The elms form a shelterbelt several trees deep and the larva was on a tree in the centre of the shelterbelt in only dappled sunlight, not on the edge of the stand (Plate I, Fig. 1). During an hour spent beating and searching with Rachel Thomas and David Hastings, this was the only larva of *C. diffinis* found. I looked forward to rearing the larva to adult to confirm its identity and to studying its feeding and spinning behaviour. However, only a few days later, on 6 June 2000, a single grub of a parasitic wasp emerged from the small larva and spun a cocoon attached to an elm leaf by the corpse of its host.

I determined the young larva as of *C. diffinis* and not *C. affinis* on the basis that its black head does not show a trace of green, that it does not have a black thoracic plate, it has the pale translucent body colour and the details of the

1



2



3

Plate I. Parasitoid of *Cosmia diffinis* (L.). 1. The elm trees from which the larva was beaten; 2. The early instar larva of *Cosmia diffinis*, parasitised by *Meteorus gyrator*; 3. *Meteorus gyrator*, its cocoon and the remains of the host larva (scale rule is millimetres).

stripes match. It is in fact an exact match to the form illustrated by Spuler (1904. *Die raupen der schmetterling Europus*. Reprint edition, 1989. Apollo. Svendborg), who seems to have illustrated the penultimate instar. Readers may be aware that the early instars of these two *Cosmia* species differ markedly from the final instar which is so often illustrated in the standard text books (e.g. Porter, 1997. *The colour identification guide to caterpillars of the British Isles*. Viking, London). For example, both species have more prominent black warts in the earlier instars. In *C. diffinis* the head capsule of the final instar is reddish brown, in *C. affinis* it is green, but it is black in the earlier instars of both species, though usually there is a hint of green in *C. affinis* (a distinguishing feature pointed out to me by John Chainey). Plate I, Fig. 2 is provided as a permanent record of the appearance of this particular host larva.

The adult wasp emerged some time later in the summer, when it was discovered dead in the rearing box. Plate I, Fig. 3 shows the wasp, its cocoon and the corpse of the larva next to a ruler graduated in millimetres for scale. These remains were sent to Dr Mark Shaw (National Museums of Scotland, Edinburgh) who identified the parasitoid as a male of the brachonid wasp *Meteorus gyrator* (Thunberg). Dr Shaw informs me that this is a common species with a wide range of recorded hosts. It appears to select noctuids which feed externally on the foliage of trees and shrubs and has also been recorded from hosts which feed on the aerial parts of grasses and other low plants. Dr Shaw reports specimens in the collections reared from the Dunbar *Cosmia trapezina*, Red-line Quaker *Agrochola lota*, Minor Shoulder-knot *Brachylomia viminalis*, Square-spot Rustic *Xestia xanthographa*, Antler *Cerapteryx graminis*, Straw Underwing *Thalpophila matura*, Bright-line Brown-eye *Lacanobia oleracea*, Small Angle Shades *Euplexia lucipara* and a probable *Mythimna* species. In cases such as these, where parasitoids may exist at high density on host species which are numerous, such as *C. trapezina*, the impact on rare species which are also susceptible in the same habitat could be considerable. As if *C. diffinis* did not have enough to contend with as a result of Dutch elm disease and the possible requirements of the moth for quite mature elms (see Waring, 2000. In the field: Searching for White-spotted Pinion *Cosmia diffinis* (Linn.). *Atropos* **10**: 5-9 and references there cited), it seems that parasitoids are another factor which need to be considered. Furthermore, braconid wasps are not the only parasitoids impacting on numbers of *C. diffinis*. John Chainey reared three *C. diffinis* larvae also collected from Boxworth in May 2000 and one of these produced a single tachinid fly. This has been identified by Nigel Wyatt at the Natural History Museum, London, as *Eumea linearicornis* (Zett.), a widespread species in southern Britain north to the Midlands and Wales. This fly has been reported from the Lunar-spotted Pinion *Cosmia pyralina* as well as from a number of other noctuid moths and also from some tortricoids and pyralids. We are most grateful to Nigel for this determination and information.

One presumes that these parasitoids were always present, but whether their impact is sufficient to contribute to local extinctions now that *C. diffinis* is much rarer and more localised is completely unknown.

I thank all the above named for their help with this observation, which took place as part of the UK Biodiversity Action Plan Project on this moth, administered by Butterfly Conservation and funded by English Nature.— PAUL WARING, 1366 Lincoln Road, Werrington, Peterborough PE4 6LS.

Hazards of butterfly collecting:

A military escort will be needed – Oman 1979

Back in October 1979, I was in the southern Province of Dhofar in the Sultanate of Oman to study and photograph butterflies for a small book on the *Butterflies of Oman* (Larsen, T. & Larsen, K., 1980. Bartholomew Books). I was an official invitee of Sultan Qaboos, who was devoted to the conservation and documentation of the rich natural and cultural heritage of Oman. I had my own Land Rover from the Royal Stables. I was staying in the Royal Guest House in Salalah, which differed from a luxury hotel only in that no money was involved. The Indian staff wanted to please you so that they could keep their jobs for as long as possible; tips and such like were deeply secondary to good references. All hotels should be like that.

There are not that many butterflies in Dhofar (about 50 species), but they are very interesting. Like in Yemen, there is a monsoon climate, which yields a profuse rainfall during the rainy season that much surpasses that of the rest of the Arabian Peninsula. The steep coastal scarp rises some 200 metres straight from the sea and has an Afrotropical flora, an impoverished version of what you might find in parts of Ethiopia. This was reflected in the butterfly fauna, which included many Afrotropical species that went no further west than Dhofar; there are even two species of *Charaxes*, both with subspecies endemic to Dhofar.

Though most of the species were very interesting, there were not that many, and I felt that I should collect other groups as well. I did a lot of moth trapping with great success: 22 species of macro-moths new to science, a dozen new beetles, and two Neuroptera have been described to my knowledge, but there might be many more.

I also had dragonflies high on my list of priorities, thanks to a request by Dr A. R. Waterston, so a visit to the Darbat Pools seemed called for. I had seen photos of them; the largest expanses of freshwater in Arabia set in an emerald green valley of the utmost beauty. It should be good for butterflies as well.

There was a botanist from Edinburgh in Dhofar, who did not have my privileges, so I asked him to come along, since it should be good for plants as well. He was delighted. The problem was that there were still residual rebel

activities in the Darbat area, so we had to get clearance. We went down to talk to a British seconded Lieutenant-Colonel in charge of Civilian Affairs: "You'll need a military escort, m'boy – can't go alone – won't do". He called back that evening and told us that our escort was booked for day after tomorrow; please be outside the guest house at 08.00, it would be too difficult for the escort to enter the guest house.

So at 08.00 we were ready with our Land Rover. At 08.01 our escort came. Not just any old escort, mind you, but an entire recce company of 120 men and 30 cars, with machine guns and recoilless anti-tank guns. A smart senior lieutenant came up and saluted: "I am your escort!". We had sort of figured that out by ourselves. He gave us a two-way radio set. We were "butterfly one".

We were designated our position in the column and off we went. Half way to the Darbat Pools I decided to make a collecting stop to see what happened, so "butterfly one" asked "butterfly three" for a stop. In no time, a perimeter was secured, machine guns and recoilless guns positioned, and we were off looking for butterflies and plants with a platoon of soldiers hot on our heels. Too close – we had to insist they stayed 30 metres from us.

After this test, we reached the pools. We stopped, and the escort deployed. It was a place of breathtaking beauty – in total contrast to the Arabian stereotype – green, lush, water everywhere. Plant hunting was fine, but butterflies were less obliging. I switched to dragonfly mode and caught several hundred specimens. After a couple of hours, we came to an area where zillions of last stage hoppers of some locust had just hatched. Our escort was delighted. Pretty soon we were all seated round a fire roasting locusts on sticks. I find locusts too oily, though the flavour is quite good, but the soldiers just wolfed them down – all pretence of protecting us had gone for the next half hour.

Five hours later we were back at base under the reassuring protection of our recoilless guns. The Lieutenant was glad to see us: "It's close to prayer time – would you mind looking after things while we pray?". Pretty soon the botanist and I were parked on top of two Land Rovers with large rifle and pair of binoculars each – and with the most rudimentary instruction on how to work the rifles. Prayers did not last long and nothing untoward happened. The fine lunch parcels were opened, as was the little box with cold beer, thoughtfully provided by the Lieutenant-colonel.

The valley had been breathtakingly beautiful and the authorities had pulled out all the stops. But the scientific results were strangely deficient. Nothing of real interest in butterflies. Just a few sedges that might be of botanical interest. And our carefully gathered dragonflies? About half the known species from Arabia, but none new to science, Arabia, or even Oman.

We both made up for that later and were simply left to relish our most beautiful day anywhere in Arabia.— TORBEN B. LARSEN, Bangladesh, World Bank, 1818 H. Street N. W., Washington D.C., 20433, USA E-mail: Torbenlarsen@compuserve.com

First UK record of *Adelognathus stelfoxi* Fitton, Gauld & Shaw (Hym.: Ichneumonidae)

The Sorby Natural History Society has a number of moth-trapping evenings each year, organised by Frank Botterill and arranged so that a fairly even coverage of the Society's area is achieved. On 1 July 2000, the session was organised jointly with the staff of Ulley Country Park (VC 63) and formed one of the Park's educational events, open to the public. Three traps were operated and a good range of moths was recorded and demonstrated. I concentrated on the non-lepidopterous element and collected a variety of insects from all three sheets. Among them were the huge caddisfly *Phryganea grandis* and the huge biting midge *Sphaeromyia fasciatus* (both new to the Rotherham list at the time, though I have subsequently recognised examples of both in collections made during the 1980s), as well as a female *Adelognathus stelfoxi*, which was newly described by Fitton, Gauld and Shaw in their key to the females of the British species (Fitton et al, 1982. The taxonomy and biology of the British Adelognathinae (Hymenoptera: Ichneumonidae). *J. Nat. Hist.* **16**: 275-283.). All previous examples of this ichneumon were collected in the Republic of Ireland by A. W. Stelfox, so this is the first record from the United Kingdom. I am grateful to Dr Mike Fitton for providing access to the Natural History Museum's collections so that I could compare the Ulley specimen with the example in his care.—BILL ELY, Rotherham Biological Records Centre, Norfolk House, Walker Place, Rotherham S65 1AS. E-mail: bill.ely@rotherham.gov.uk

A March Humming-bird Hawk-moth *Macroglossum stellatarum* (L.) (Lep.: Sphingidae) in north-east Essex

On 14 March 2001, which was a mild and sunny day, my wife Linda and I were surprised to see a Humming-bird Hawk-moth hovering in front of a clump of wallflower blooms in a side street at Manningtree, north-east Essex. After a minute or so it darted off to investigate other possible nectar sources, including *Aubretia* and *Primula*, in a garden border.

This is certainly my earliest record for this immigrant species in Essex and since there were also sightings in south-west England from January to early March it gives rise to speculation that there may have been some overwintering adults in the southern half of Britain.

Brian Goodey, the Essex Moth Recorder, informs me that he has only two other March records for this moth species in the Essex Database: 14 March 1991 at Chadwell St Mary (C. D. Wells) and 9 March 1995 at Colchester (J. Heath).—JOE FIRMIN, 55 Chapel Road, West Bergholt, Colchester, Essex CO6 3HZ.

**MENDESIA FARINELLA (THUNB.) (LEP.: ELACHISTIDAE):
A MOTH TO LOOK FOR IN BRITAIN**

J. D. BRADLEY

Conifers, Chard Junction, Chard, Somerset TA20 4QJ.

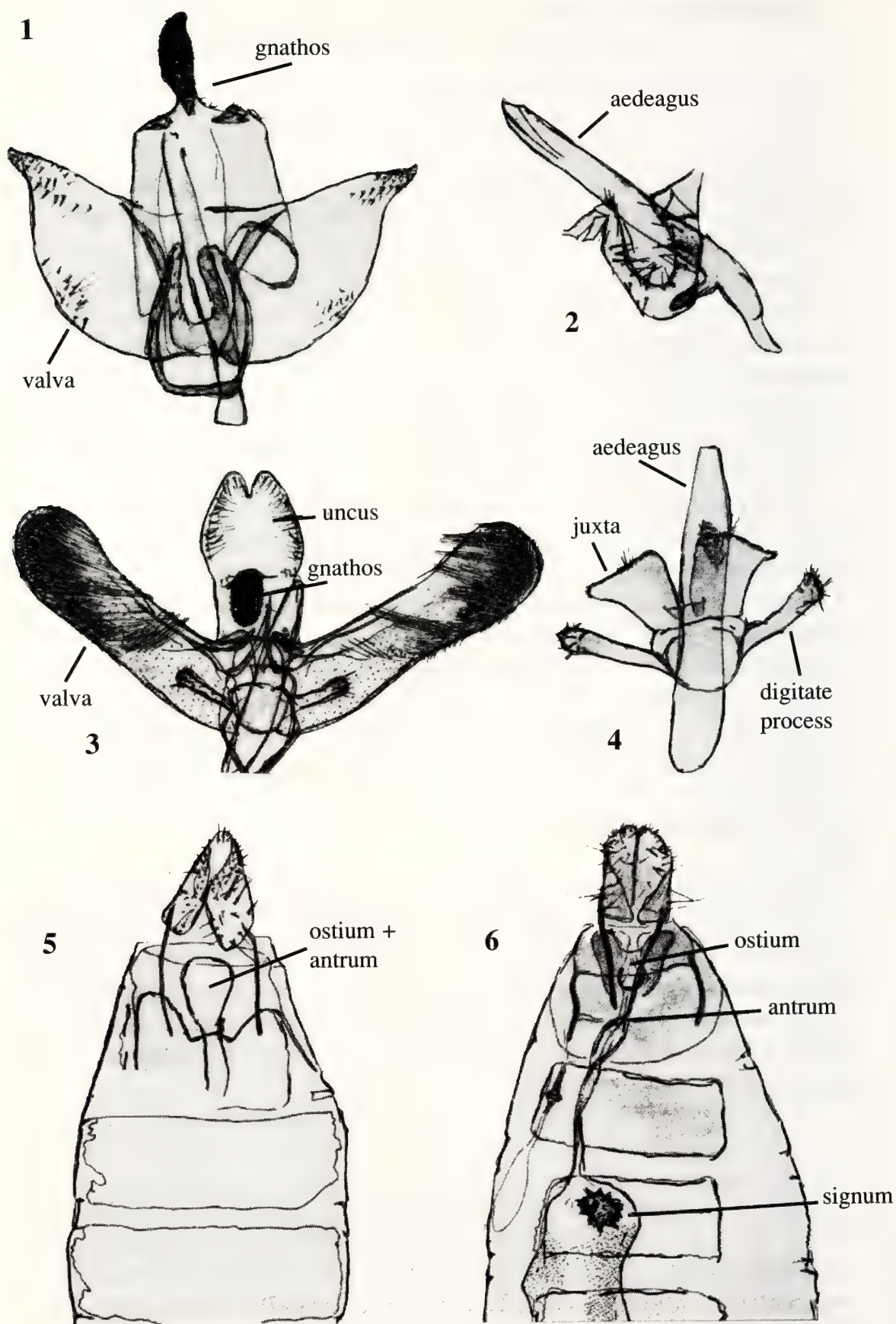
It is fifty years since a specimen of the Western Palaearctic elachistid *Mendesia farinella* (Thunberg) was discovered in the Hawkshaw collection at Cambridge (Bradley, 1950). The specimen, a male with data label inscribed "Dover, 25.7.1897 (sp. no. 6394 C.H.)", was apparently collected by Hawkshaw and included in his series of the common, white *Elachista argentella* (Clerck), which is often seen in May and June. At the time it was detected, no diary or notebook could be traced that might provide further details of its history. So far, no other record of *farinella* is known from south-east England or elsewhere in the British Isles, and its status here is uncertain (Bradley, 2000: species number 591).

The discovery of the specimen in the Hawkshaw collection was a result of an inspired search by Edouard Janmouille, of Brussels. He was aware (Janmouille, 1945; 1947) that specimens of *farinella* had been found mixed with *argentella* in continental collections. In one case they were believed to represent a new species and described and named as *Mendesia subargentella* Dattin (1932), and only later found to be conspecific with *farinella*. Janmouille surmised that as *farinella* has a wide western distribution in continental Europe, its range extending from Finland, Sweden and Denmark southwards to France and Italy, it might occur in Britain but be overlooked because of confusion with *argentella*; hence his quest to examine British material and the discovery of the Hawkshaw specimen.

Although *farinella* is widely distributed in Europe, it is apparently elusive and its life history is unknown. It may occur in grassy habitats with *argentella*, but the foodplant(s) of the larva is believed to be a borage (Boraginaceae) and not grasses (Poaceae) like that of *argentella*. The closely related *M. echiella* Joannis, which occurs in Spain, Portugal, Sardinia and Sicily, feeds on Viper's-bugloss (*Echium* sp.), mining a leaf and pupating on its surface.

Identification

The adults of *M. farinella* and *E. argentella* are alike in general appearance, with almost plain white forewings and greyish hind wings. Size seems to be an unreliable criterion, since Traugott-Olsen (1977: 39, plate-fig. 1) and Bland (1996: 362, plate 17) both give the wingspan for *farinella* as 12-14 mm and that for *argentella* as 11-12 mm., but depict *argentella* as being much the larger.



Figures 1 – 6: Genitalia of *Mendesia farinella* (Thunb.) and *Elachista argentella* (Cl.):
 Figs. 1, 2 & 5: *Mendesia farinella* (1: ♂ - ventral view; 2: aedeagus; 5: ♀ - ventral view.
 Figs. 3, 4 & 6: *Elachista argentella* (3: ♂ - ventral view; 4 - aedeagus; 6: ♀ - ventral view)

Mendesia farinella Antenna finely ciliate, especially in male, rough-scaled; male genitalia (Figs. 1, 2) with valva broad, peaked apically, uncus not developed, gnathos elongate, digitate process undeveloped; female genitalia (Fig. 5) with ostium bursae and antrum bulbous, corpus bursae without signum.

Elachista argentella Antenna not ciliate, scales loosely appressed; male genitalia (Figs. 3, 4) with valva narrow-elongate, rounded distally, uncus large, incised, gnathos short-ovate, digitate process slender-elongate, juxta broadly triangulate-quadrate; female genitalia (Fig. 6) with U-shaped sclerotised medial area around ostium, antrum narrow, signum present as an irregular platelet with dentate margins.

Acknowledgements

I am most grateful to Ernst Traugott-Olsen, an authority on the family Elachistidae, presently of Marbella, Spain, for kindly allowing me to use figures of the genitalia in his 1977 and 1995 publications.

References

- Bland, K. P., 1996. *Elachistidae* In Emmet, A. M. (Ed.) *The Moths and Butterflies of Great Britain and Ireland*. 3: 339-410. Harley Books.
- Bradley, J. D., 1950. *Mendesia farinella* (Thunberg) (Lepidoptera Elachistidae): a species new to Britain. *Microscope* 7: 299-303.
- , 2001. Checklist of Lepidoptera recorded from the British Isles. Second edition (revised). Privately published.
- Dattin, E., 1932. Note sur une Elachistidae nouvelle *Mendesia subargentella* sp. n.. *Amat. Papillons*. 6: 161-168.
- Janmouille, E., 1945. Une espèce méconnue: *Mendesia subargentella* Dattin. *Lambillionia* 45: 3-4.
- , 1947. Une question de nomenclature. *Lambillionia* 47: 64-72.
- Traugott-Olsen, E., 1995. Phylogeny of the subfamily Elachistinae s. str. Part I: Mendesiini, with taxonomic revision and descriptions of new taxa. *Revista Lepid.* 23: 153: 180.
- Traugott-Olsen, E. & Nielsen, E. S., 1977. The Elachistidae (Lepidoptera) of Fennoscandia and Denmark. *Fauna ent. scand.* 6: 1-299.

Observations of the egg-laying behaviour of the Argent and Sable moth *Rheumaptera hastata* (L.)(Lep.: Geometridae)

The UK BAP moth project is looking for suitable sites to study the egg-laying and larval behaviour of the Argent and Sable *Rheumaptera hastata* in lowland woodland. Sites with strong populations are needed.

Most of my own such observations have taken place in ancient woodland sites where mixed broadleaves have been cleared to establish young conifer crops and are in habitat similar to that formerly created on a regular basis in many of our woodlands by coppicing. The low birch re-growth in the deer lawns sometimes maintained for deer watching and control is another situation in which I have regularly seen the moth breeding. A couple of my field notes are particularly detailed. I recall watching a female in fresh condition laying eggs at 15.20 hours on 9 June 1984 on re-growth of Silver Birch *Betula pendula* two metres tall growing along the edge of a ride in the Shabbington Wood complex in Buckinghamshire. The re-growth was sparse and the moth was able to fly amongst the sprays of leaves. I saw her lay a single, pale, cream egg on the underside of a birch leaf. The spray was in the shade of other leaves, but the bush itself was in full sunshine. The birch plant was on the north side of the east-west ride, below and in front of a tree of Western Hemlock *Tsuga heterophylla*. The ride itself was grassy and 8-10 metres wide, not bare earth. The trees of the conifer crop were spaced seven metres from tree to tree, with some low birch re-growth between, so there were both ample sun and shelter from wind. Trees were sparse, because there had been a fire on the site some years before. The same day I watched another female, in Waterperry Wood, Oxfordshire at 17.45 hours. She was flying low, and I followed her for 200 metres across a recent clearfell, which had only just been deer-fenced. I watched her lay five eggs on stump-shoots of Silver Birch only 30cm tall, in full sunshine in the centre of the clearing. Each egg was laid on the underside of a birch leaf, three eggs on one leaf and the other two on separate leaves about 50cm apart. During egg-laying, her flight was never more than one metre above ground. But after laying these eggs she ascended to about ten metres and her flight took her out of the clearing and up into tall birches on the edge. I had seen the first Argent and Sable of the season at this site on 31 May, so these observations were at least ten days into the flight period. It is obviously much easier to record egg-laying when it occurs near the ground and we do not know at present how much, if any, breeding takes place in tall trees. This will only be discovered by sampling for larvae at different heights. Low foliage in open but sheltered ground is likely to enjoy a warmer microclimate than canopy foliage. The striated brownish larvae conceal themselves within spun birch leaves and I reared a couple from the above eggs. It is worth remembering that in northern Britain the moth breeds on Bog Myrtle *Myrica gale* as well as birches, in open moorland situations, and the larvae can be found spun between terminal shoots, with the Bog Myrtle usually less than one metre in height. If you have any observations like those above, David Green at Butterfly Conservation is keen to hear from you (The moth has disappeared from many former haunts and may now have been lost from the two woods mentioned above. Lack of frequent small-scale clearances, exacerbated by heavy browsing by deer, are the currently favoured suggested causes of the decline.—

PAUL WARING, 1366 Lincoln Road, Werrington, Peterborough PE4 6LS.

AFRAID TO WRITE?

Have you discovered something that might be of interest to other entomologists, but are a little unsure if it is really worth printing? Or perhaps you think it is worth putting into print

and are just not sure how to go about it?

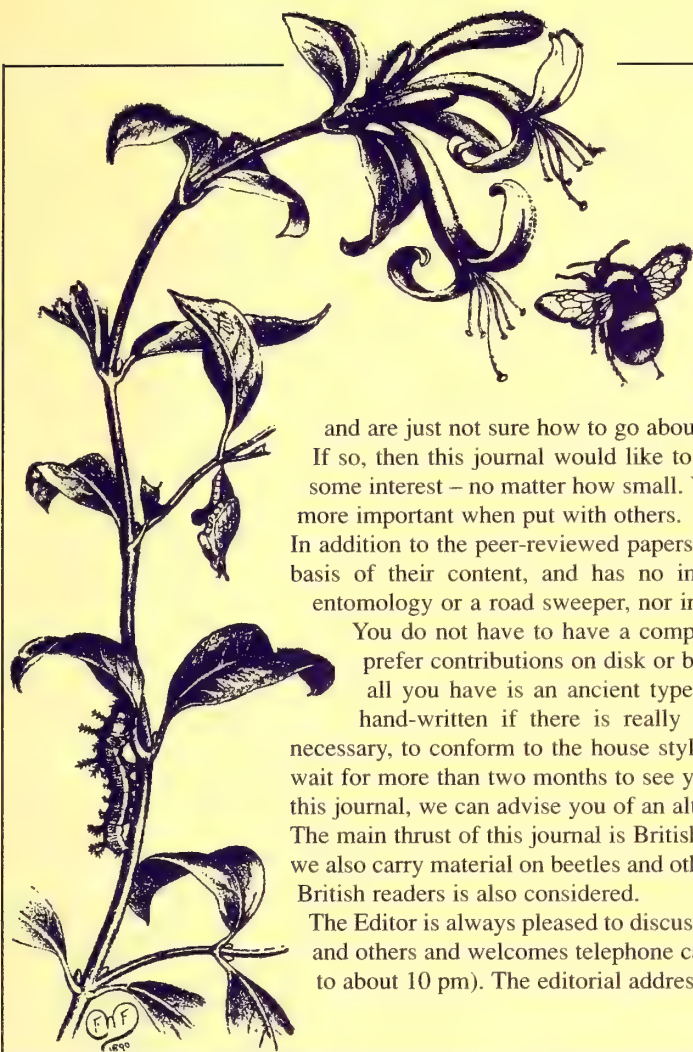
If so, then this journal would like to hear from you. Almost all discoveries are of some interest – no matter how small. Very often an isolated observation can become more important when put with others.

In addition to the peer-reviewed papers, this journal also accepts shorter notes on the basis of their content, and has no interest whether the author is a professor of entomology or a road sweeper, nor in whether he or she can write perfect English.

You do not have to have a computer to contribute – although we certainly do prefer contributions on disk or by e-mail. This should in no way put you off if all you have is an ancient typewriter. We even accept contributions that are hand-written if there is really no alternative. We will rewrite the note, if necessary, to conform to the house style. At present moment you will rarely have to wait for more than two months to see your name in print. If notes are not suitable for this journal, we can advise you of an alternative and forward them for you.

The main thrust of this journal is British moths (macro and micro) and butterflies, but we also carry material on beetles and other groups. European information of interest to British readers is also considered.

The Editor is always pleased to discuss potential contributions with first time authors and others and welcomes telephone calls on 01279 507697 (daytime or evenings up to about 10 pm). The editorial address is printed inside the front cover of this issue.



Entomologist's Monthly Magazine

Caters for articles on all orders of insects and terrestrial arthropods, specialising in the British fauna and groups other than Lepidoptera. Published March, July and November (4 months per issue)

Annual subscription UK and Europe £33 (\$72), USA and Rest of World £36 (\$79).

Entomologist's Gazette

An illustrated quarterly, devoted to Palaearctic entomology. It contains articles and notes on the biology, ecology, distribution, taxonomy and systematics of all orders of insects, with a bias towards Lepidoptera. Caters for both the professional and amateur entomologist. Published January, April, July and October.

Annual subscription UK and Europe £29 (\$64), USA and Rest of World £33 (\$72).

The Moths and Butterflies of Cornwall and the Isles of Scilly

by F.H.N. Smith (County Species Recorder)

The systematic list gives details of localities, dates and provenance for over 1500 species, also noting the status currently assigned by English Nature to the nationally uncommon or endangered species which occur in Cornwall. Listed are species gained since the Victoria County History, 1906, and those not since recorded. 480 pages including 152 colour illustrations. **Hardback £44 + P&P £3.**

Handbook of Palaearctic Macrolepidoptera

VOLUME 1 Sesiidae – Clearwing Moths

by K. Špatenka, O. Gorbunov, Z. Laštůvka, I. Toševski and Y. Arita

Synonymic lists, descriptions section, full data on male and female genitalia, bionomics and habitat and distribution maps. Most species illustrated by superb watercolour paintings by Starý, Holzinger and Gregor. Published October 1999. **Price £120 + P&P: UK £5, Overseas £10.**

Payments by cheque or Giro Transfer to account no. 467 6912.

*For further details
please write to:*

**GEM PUBLISHING COMPANY
Brightwood, Brightwell,
Wallingford, Oxon OX10 0QD**



THE ENTOMOLOGIST'S RECORD

AND JOURNAL OF VARIATION

<http://members.netscapeonline.co.uk/colinwplant/entrechome.html>

Contents

<i>Leptidea reali</i> Reissinger 1989 (Lep.: Pieridae): a butterfly new to Britain and Ireland. Brian Nelson, Maurice Hughes, Robert Nash and Martin Warren	97-101
Migrant butterflies and the Millennium Atlas. Richard Fox, Martin Warren, Jim Asher, Gail Jeffcoate, Stephen Jeffcoate and Paul Harding	103-112
<i>Peyerimhoffina gracilis</i> (Schneider, 1851) (Neur.: Chrysopidae): A green lacewing new to Britain. Bart Donato, Stephen J. Brookes, John A. Pickett and Jim Hardie	131-135
<i>Mendesia farinella</i> (Thunb.) (Lep.: Elachistidae): A moth to look for in Britain. J. D. Bradley	141-143

Notes

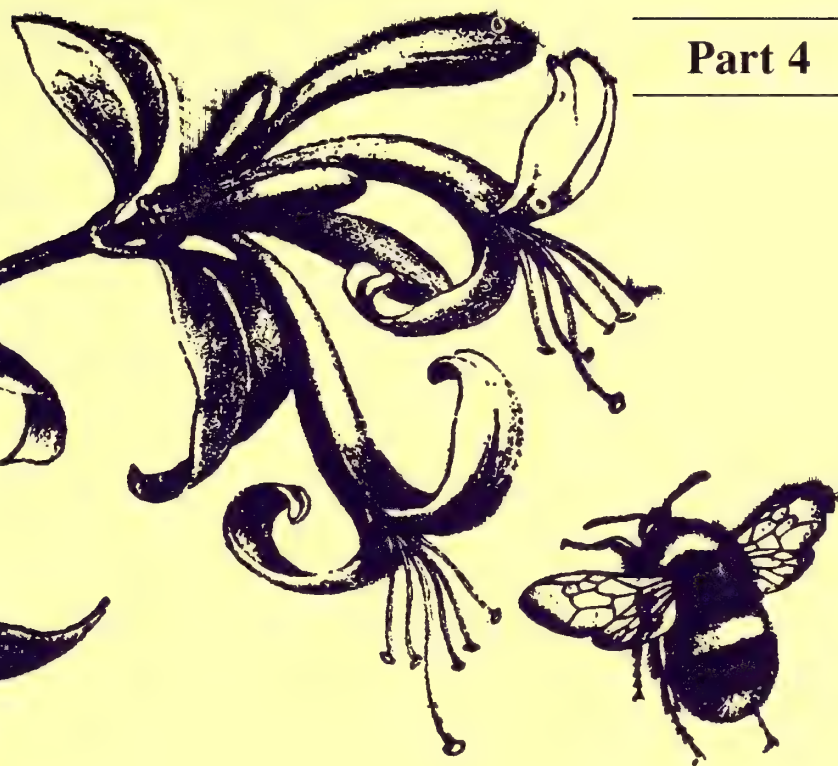
Little known entomological literature – 8. Brian O. C. Gardiner	102
Two immaculate Sand Dart <i>Agrotis ripae</i> (Hb.) at the inland site of Calceby Beck Marsh SSSI, Lincolnshire. Paul Waring	113-116
Moth trapping at Kingsham, West Sussex, 2000. Sarah Patton	116-117
A purple hairstreak down at ground level. Richard A. Jones	118
Red-necked Footman <i>Atolmis rubricollis</i> (L.) (Lep.: Arctiidae) in Lancashire. Stephen Palmer	118-119
A recent record of <i>Anomoia purmunda</i> (Harris) (Dipt.: Tephritidae) from Scotland. David Horsfield	119-120
<i>Bruchus rufipes</i> Herbst (Col.: Bruchidae): a warning to users of “Joy”. A.A. Allen ...	120
<i>Cydia amplana</i> (Hubner) (Lep.: Tortricidae) in Hampshire. Richard Dickson	120
Some moth conservation news updates. Paul Waring	121-129
More on <i>Oedemera</i> spp. (Col.: Oedemeridae). A.A. Allen	130
<i>Gastrophysa viridula</i> Degeer (Col.: Chrysomelidae) new to West Sussex. Richard A. Jones	130
Parasitoid <i>Meteorus gyrator</i> (Thunb.) (Hym.: Braconidae: Meteorinae) reared from larva of the White-spotted Pinion moth <i>Cosmia diffinis</i> (L.) (Lep.: Noctuidae) in Cambridgeshire. Paul Waring	135-138
Hazards of butterfly collecting: A military escort will be needed – Oman 1979. Torben B. Larsen	138-139
First UK record of <i>Adelognathus stelfoxi</i> Fitton, Gauld & Shaw (Hym.: Ichneumonidae). Bill Ely	140
A March Humming-bird Hawk-moth <i>Macroglossum stellatarum</i> (L.) (Lep.) Sphingidae) in north-east Essex. Joe Firmin	140
Observations of the egg-laying behaviour of the Argent and Sable moth <i>Rheumaptera hastata</i> (L.) (Lep.: Geometridae). Paul Waring	143-144

PUBLISHED BI-MONTHLY

DL
461
3992
ENT

Vol. 113

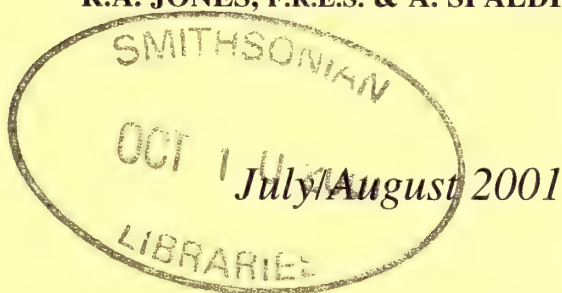
Part 4



THE
ENTOMOLOGIST'S RECORD
AND
JOURNAL OF VARIATION

Edited by
C.W. PLANT, B.Sc., F.R.E.S.

Assistant Editors
R.A. JONES, F.R.E.S. & A. SPALDING, F.R.E.S.



ISSN 0013-8916



THE ENTOMOLOGIST'S RECORD

AND JOURNAL OF VARIATION

World List abbreviation: *Entomologist's Rec. J. Var.*

Editor

C.W. PLANT, B.Sc., F.R.E.S.

14 West Road, Bishops Stortford, Hertfordshire CM23 3QP.

Telephone: 01279 507697 E-mail: colinwplant@netscapeonline.co.uk

Assistant Editors

R.A. JONES, B.Sc., F.R.E.S., F.L.S. & A. SPALDING, M.A., F.R.E.S.

Editorial Panel

A.A. Allen, B.Sc., A.R.C.S.

N. L. Birkett, J.P., M.A., M.B., F.R.E.S.

J.D. Bradley, Ph.D., F.R.E.S.

J.M. Chalmers-Hunt, F.R.E.S.

P.J. Chandler, B.Sc., F.R.E.S.

C.A. Collingwood, B.Sc., F.R.E.S.

C.J. Luckens, M.B., Ch.B., D.R.C.O.G.

B. Skinner

P.A. Sokoloff, M.Sc., C.Biol., M.I.Biol.,

F.R.E.S.

Registrar

R.F. McCormick, F.R.E.S. 36 Paradise Road, Teignmouth, Devon TQ14 8NR

Hon. Treasurer

C.C. Penney, F.R.E.S. 109 Waveney Drive,
Springfield, Chelmsford, Essex CM1 7QA

Photograph Editor

David Wilson, 9 Lode Lane, Wicken,
Cambridgeshire CB7 5XP

WHERE TO WRITE

Papers, notes, books for review, notices, adverts etc – *Editor*

Changes of address – *Registrar*

New subscriptions, renewals, donations, non-arrival of Journal – *Treasurer*

Back issues – Paul Sokoloff, 4 Steep Close, Green Street Green, Orpington, Kent BR6 6DS

ANNUAL SUBSCRIPTION RATES

Individual subscriber £28

Institutional subscriber £40

Readers are respectfully advised that the publication of material in this journal does not imply that the views and opinions expressed therein are shared by the Editor, the Editorial Panel or any party other than the named author or authors.

Guidelines for contributors

We welcome articles for publication from all sources. It is not necessary for authors to be subscribers. Please follow the format of articles in this issue of the journal. Full instructions may be obtained by post from the editor or via our web site at:

<http://members.netscapeonline.co.uk/colinwplant/entrechome.html>

We are now able to include colour or black and white photographs (or slides), where these effectively illustrate a point in your article.

We publish notes and peer-reviewed papers on **British Isles** insects, primarily Lepidoptera and Coleoptera, but contributions on any other group may also be sent. We also include articles on European species in some situations, where we believe this to affect the British Isles fauna or to be of interest to British Isles entomologists. Non-European articles may be included, rarely, and entirely at editorial discretion.

All papers are subject to peer-review and are almost always returned to the author for corrections to be made. Authors should be prepared to make changes. Notes and communications are reviewed by the editorial panel and are not normally returned to authors for checking.

You do not need to have a computer to contribute; we are able to accept typed papers and notes, or even hand-written notes, if necessary. However, it helps enormously to receive manuscripts via E-mail or on floppy disk, in a PC-compatible format that can be read by Microsoft Word 2000. This process also saves us £3 per page in typesetting costs and makes editing much easier.

Drawings, graphs, photographs etc may be sent in an electronic form that has been previously agreed with us. In all other cases, we need the originals (which will be returned).

Authors of papers may receive 25 free reprints and can pay for more. All reprints must be ordered on a form provided with the proofs. Reprints of notes are not provided unless specifically requested at the time of submission.

The editor is always happy to discuss contributions with authors and will be especially pleased to offer help to anyone writing an article for the first time.

**REGIONAL VARIATION IN THE PROPORTION OF PLAIN AND
BANDED FORMS OF THE RIBAND WAVE *IDAEA AVERSATA* (L.)
(LEP.: GEOMETRIDAE) IN GREAT BRITAIN**

ROY LEVERTON

Whitewells, Ordiquhill, Cornhill, Banffshire AB45 2HS.

Introduction

THE RIBAND WAVE *Idaea aversata* is a common and generally distributed resident throughout most of mainland Britain, absent only from outlying Scottish islands. Dimorphism is well-known in this species. In the type form, the space between the central and postmedian lines on both fore and hind wings is filled with a darker grey suffusion to give a banded or ribbon effect, hence the vernacular name. This suffusion is lacking in ab. *remutata* Linnaeus, the plain form. Ford (1955) stated that the gene responsible for the bands is almost completely dominant, homozygotes being only slightly more extreme than heterozygotes.

However, the literature is divided about the relative proportions of the two forms in Britain. Ford (*loc. cit.*) considered that the banded form made up about 5% of the population “and there is no part of the country where it seems to be especially frequent”. Yet Skinner (1998) considered both plain and banded forms to be equally common, whereas in north-east Scotland the banded form appears to be absent altogether. It seemed probable that there are indeed regional differences, and that it would be a relatively straightforward exercise to investigate these.

Methods

Waring (1999) gave a directory of moth recorders for all the Watsonian vice-counties of Great Britain. These recorders (or their successors where applicable) were asked to supply information about the relative proportions of the two forms of Riband Wave in their area. When it became clear that very little hard data were available, subscriber notices were placed in the present journal and in *Atropos*, requesting actual counts of the two forms either from previous years or in the approaching season (1999).

Recorders were trusted to identify the species correctly. There is little danger of the typical form being confused with any other species; a superficially similar banded form of the Clay Triple-lines *Cyclophora linearia* illustrated by Thomas (1999) must be very rare. The resemblance of ab. *remutata* to the relatively local and scarce Plain Wave *Idaea straminata* is undeniable. While misidentifications cannot be excluded, it was felt that they were unlikely to have a serious effect on the data, especially as most trapping sites would be gardens. Incidentally, perhaps the most reliable distinguishing feature between the two species is the terminal line, which in the Riband Wave is made up of alternating dots and dashes but consists of dashes alone in the Plain Wave. This is illustrated in Skou (1984).

Results

Perhaps fewer than half of the recorders contacted in the initial questionnaire were able to provide any information on the prevalence of the two forms. Of the replies, almost all gave general impressions not backed by hard figures. Estimates varied widely, the proportion of the banded form ranging from 5% to 80%. Doubtless many of these estimates were accurate, but unfortunately it was impossible to tell which. Certainly some recorders were confused, and had assumed that *ab. remutata* was the banded form rather than the plain. Otherwise, it appeared that the main tendency was to overestimate the frequency of the banded form, and several recorders who later made counts were surprised when it proved to be far less frequent at their own site than they had believed. Perhaps the banded form registers more strongly on the consciousness. Although these preliminary estimates were unreliable, they did confirm one valuable point: except in north-east Scotland, no recorders declared the banded form to be absent from their area.

Following the appeals for actual counts, 25 replies were received. In a few cases the sample sizes were too small for any meaningful calculation, so they provided background information only. Normally, a figure of 100 sightings was taken as the minimum required, and achieved if necessary by combining counts from different years or neighbouring localities. This relatively high figure was chosen because of the unknown effect of retraps on the calculations where a trap is being run nightly and the moths released nearby. Although some respondents were aware of it, in general lepidopterists tend to ignore this complication, treating every capture as a new individual. In my own garden I regularly retrap recognisable moths, not necessarily on consecutive nights, for up to a week or longer. The record is held by a female Spinach *Eulithis mellinata*, recaptured a minimum of 19 days after being marked and released. This was during a prolonged period of poor weather, so the moth probably spent most of the intervening time sheltering under a leaf, as it was still in reasonable condition and undoubtedly would have been considered a new individual if not marked. Thus the sample sizes (as opposed to sightings) in this present study might be rather smaller than at first they appear.

In all, 21 acceptable counts were obtained from the survey, and a further four were extracted from Pratt (1999). Together they provided 25 counts from 21 (out of 112) different Watsonian vice-counties, all from England and Wales apart from my own for Banffshire. These are listed in Table 1. Considering the simplicity of the exercise and the increasing number of observers who run a moth trap, perhaps this was a slightly disappointing return.

In spite of confident claims that the banded form makes up half the population in certain areas, for instance London (Plant, 1993) and Cornwall (F. Smith, pers. comm.), the highest percentage backed by solid data from the present study was 30.3% for a rural garden in East Kent VC15, closely matched by a figure of 28.9% for West Kent VC 16. This does not necessarily

<i>Vice County</i>	<i>Site</i>	<i>Habitat</i>	<i>Year</i>	<i>Sample</i>	<i>Banded %</i>	<i>Observer</i>
5 South Somerset	Stoke sub Hamdon	garden	1997-8	207	19.3	Mark Yeates
9 Dorset	Blandford	rural garden	1999	99	26.3	Paul Benham
13 West Sussex	Lymminster	coastal village	1997-8	216	21.8	R E Pratt
14 East Sussex	Peacehaven	coastal village	1993-8	470	24.7	Colin Pratt
14 East Sussex	Rye Harbour	coastal village	1996	232	22.4	D J Funnell
14 East Sussex	Northiam	rural village	1997-8	181	22.1	D Burrows
15 East Kent	Kingsdown	coastal village	1999	353	22.4	Nigel Jarman
15 East Kent	Rainham	rural garden	1999	132	30.3	Owen Davis
16 West Kent	Barnehurst	suburban garden	1996-	9446	28.9	Tony Steele
17 Surrey	South Croydon	garden	1999	533	27.6	Graham Collins
18 South Essex	various sites combined	-	1999	301	20.3	per Brian Goodey
19 North Essex	various sites combined	-	1999	979	23.1	per Brian Goodey
20 Hertfordshire	Hertford	suburban garden	1999	563	24.9	Andrew Ward
21 Middlesex	Staines	garden	1999	358	20.7	John Muggleton
21 Middlesex	Northwood	suburban garden	1978-86	152	19.1	A M George
38 Warwickshire	Rugby	garden	1999	155	15.5	P F Nicholas
49 Caernarfonshire	Bangor	garden	1999	169	16.0	Debbie Evans
51 Flintshire	Hawarden	garden	1999	220	14.1	Geoff Neal
54 North Lincolnshire	Woodhall Spa	heathland	1995-8	368	21.7	J Jaines
58 Cheshire	Nantwich	rural garden	1995-8	495	17.6	Paul Griffiths
59 South Lancashire	Flixton	suburban garden	1999	619	15.0	Kevin McCabe
61 S.E. Yorkshire	Spurn	coastal peninsula	1999	132	13.6	Barry Spence
62 N.E. Yorkshire	Yarm	rural garden	1991-7	473	14.0	Gordon Follows
63 S.W. Yorkshire	Elland, Halifax	garden	1999	270	21.9	Paul Talbot
94 Banffshire	Ordiquhill	rural garden	1991-00	81	0	Roy Leverton

Table 1. The percentage of the banded form of the Riband Wave *Idaea aversata* in various Watsonian vice-counties of Great Britain.

suggest that estimates of up to 50% for other areas are incorrect, but clearly they need to be viewed with caution until supported by actual counts of appropriate sample sizes, given the tendency to over-estimate the proportion of banded individuals that has already been mentioned. The lowest percentage of the banded form was 13.6% in south-east Yorkshire VC61, again closely matched by a neighbouring vice-county, 14.0% in north-east Yorkshire VC62.

For the southern half of Britain, there was a tendency for the percentage of banded forms to be highest in the south, gradually decreasing northwards, as shown by Fig. 1 and Fig. 2. This relationship was analysed using Spearman Rank Correlation and was found to be highly significant, regardless of whether the Banffshire outlier was included or not:

$r_s = -0.673$, $df\ 24$ and $r_s = -0.631$, $df\ 23$ respectively, both $P < 0.01$

Adjacent vice-counties produced broadly similar returns, with no striking anomalies in the overall pattern. This increases confidence in the validity of the data, although it was a somewhat surprising outcome, given the widely differing opinions of the prevalence of the two forms. In fact, dimorphism in the Riband Wave shows relatively little local and regional variation (at least in the southern half of Britain) when compared with other documented instances, especially those involving melanic forms as in the Peppered Moth *Biston betularia* (Grant *et al.*, 1998).

Unfortunately, no counts were received from Britain north of Yorkshire apart from my own for Banffshire, where the banded form seems absent, likewise in north-east Scotland as a whole. M. R. Young and R. M. Palmer stated that they have never seen it in North Aberdeenshire VC93, South Aberdeen VC92 or Kincardineshire VC91 in over 25 years of recording. The moth itself is not numerous in these vice-counties, which is possibly a factor: abundant species tend to be the most variable (Leverton, 2001). It is tempting to assume that the gradual northwards decline in the percentage of the banded form continues unbroken until its absence in north-east Scotland, but there are indications that this is untrue. Keith Bland (pers. comm.) estimated the banded form to comprise 25% of the population in Mid Perthshire VC88 and East Perthshire VC89 but below 5% elsewhere in southern Scotland, while Stephen Moran (pers. comm.) estimated 30% for East Inverness-shire VC96 and East Ross VC106. Even if these estimates are too generous, the situation in Scotland seems likely to be complicated, so the absence of hard data is all the more disappointing.

Some recorders gave a breakdown of their daily catches. There was no detectable difference in capture dates between banded and plain forms, which apparently occurred in a similar ratio throughout the flight season at each site. In England the Riband Wave had an extended flight period mainly from mid-June to mid-August, the start and finish being slightly later in the north. One on 16 May 1997 in Somerset was exceptionally early. There was no evidence of a second brood as such, but occasional individuals noted in September

presumably represented a very small second generation. In Banffshire the flight period was shorter and later, mainly from the last week of July to late August.



Figure 1. The proportion of banded specimens of the Riband Wave *Idaea aversata* (L.) in samples from various localities within Great Britain.

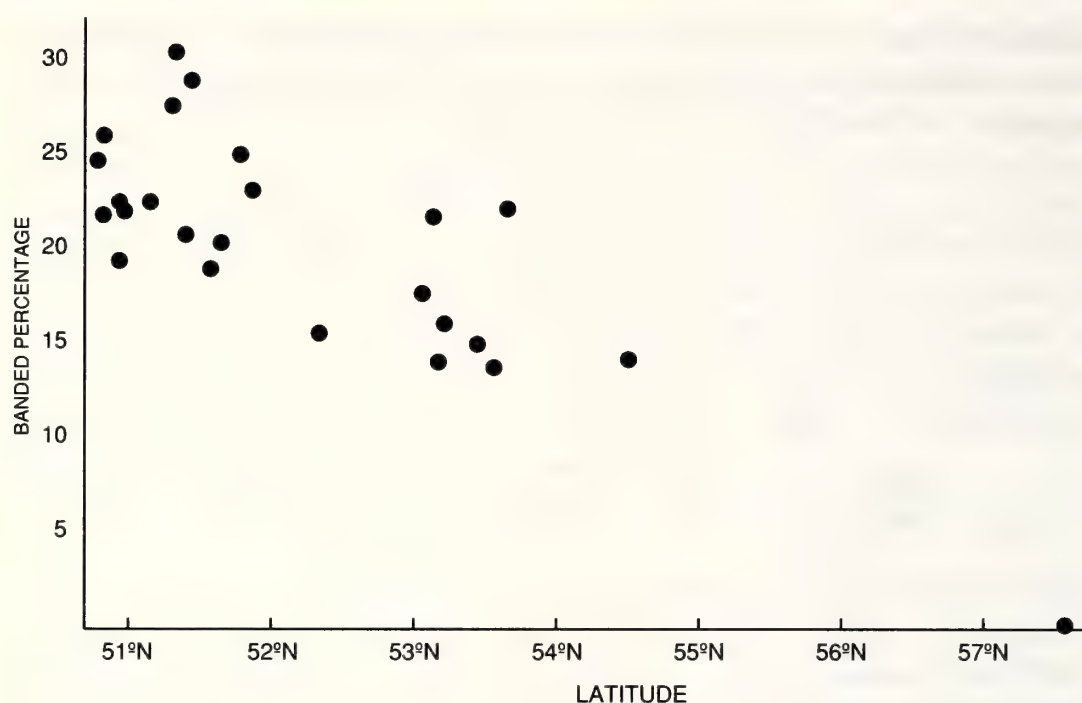


Figure 2. The percentage of banded specimens of the Riband Wave *Idaea aversata* (L.) plotted against latitude in Great Britain.

Discussion

Ford (*loc. cit.*) uses the Riband Wave to illustrate the theory of a “balanced polymorphism” – where the heterozygote has an advantage over either of the homozygotes. Thus Riband Waves with only one copy of the “banded” gene would be favoured over the plain form, but those with two copies would be at a disadvantage, presumably because they were physiologically less hardy. Natural selection would therefore create an equilibrium where the banded gene was maintained at its most advantageous level in the population, being selectively favoured when its percentage fell low but selectively eliminated if it rose so high that homozygotes became too frequent.

The surprisingly close agreement between the percentage of the banded form at sites within the same county or in neighbouring ones does suggest that some precise mathematical factor of this kind is at work, sufficient to override any variations that might be expected due to chance or to the individual characteristics of the sites. Although Majerus (1998) presents data showing that the banded form is relatively more frequent in dense closed canopy woodland than in open areas, habitat seems to have had little obvious influence on the present study, perhaps because most sites were gardens. However, the declining percentage of the banded form with increasing distance northwards suggests that climate might be a factor in the equation, but the sparseness of the data from northern Britain hinders the drawing of firm conclusions.

Acknowledgments

I thank Colin Plant for inserting my request for data into this journal, and Mark Tunmore for doing the same in *Atropos*. I am grateful to all the observers who responded; besides those mentioned in the text or listed in Table 1 they include: A. A. Allen, N. L. Birkett, Roland Brown, A. J. Halstead, Rex Johnson, P. J. Oliver and John Saul. Apologies to anyone inadvertently omitted, and to all for the delay in writing up the results. Mark Young kindly helped me with the statistical analysis.

References

- Ford, E. B., 1955. *Moths*. New Naturalist, Collins, London.
- Grant, B. S., Cook, D. A., Clarke, C. A. and Owen, D. F., 1998. Geographic and Temporal Variation in the Incidence of Melanism in Peppered Moth Populations in America and Britain. *The American Genetic Association* **89**: 465-471.
- Leverton, R., 2001 *Enjoying Moths*. Poyser, London.
- Majerus, M. E. N., 1998. *Melanism*. Oxford University Press, Oxford.
- Plant, C. W., 1993. *Larger Moths of the London Area*. London Natural History Society.
- Pratt, C. R., 1999. *A Revised History of the Butterflies and Moths of Sussex*. Booth Museum, Brighton.
- Skinner, B., 1998. *Colour Identification Guide to Moths of the British Isles*. Viking, Middlesex.
- Skou, P., 1984. *Nordens Malere*. Apollo Books, Denmark.
- Thomas, R., 1999. Aberrant Clay Triple-lines *Cyclophora linearia* (Hb.). *Atropos* **7**: 30.
- Waring, P., 1999. The National Recording Network for the Rarer British Macro-moths. *Atropos* **6**: 19-27.

Pearl Bordered Fritillary *Boloria euphrosyne* L (Lep.:Nymphalidae): A March Record?

On visiting a friend in Cambridge at the beginning of April 2001, I asked if she had seen any butterflies during the hitherto unpromising spring weather. Yes, said Mrs Rosalind Buffery, she had seen a fritillary the previous day (30 March). This seemed to me unlikely, and I suggested it might have been a Comma *Polygonia c-album*, recently out of hibernation.

Later we went around the garden, near the University Library, and there were wild violets in full flower everywhere, under the trees and in the hedges. The presence of fritillaries during the summer would not be at all unlikely, and my friend, an observant person, would assuredly have known what they looked like, and not confused them with Commas.

Consequently, my know-all attitude was almost certainly misplaced, and this was a genuine sight record of a newly hatched *Boloria euphrosyne*, near the backs in Cambridge, on 30 March 2001.— R. C. DENING, 20 Vincent Road, Selsey, West Sussex PO20 9DQ (E-mail: dening@globalnet.co.uk).

Once bitten...

The central character of Edgar Allen Poe's short story *The gold bug* pretends to get bitten by a golden beetle, probably one of the Central American *Plusiotis* chafers allied to our rose chafer *Cetonia aurata* (L.). It was a hoax, however, to add zest to the unravelling of a golden treasure hunt. But beetles do bite, and readers might be interested to know that a stag beetle *Lucanus cervus* L., recently drew blood, when it bit me on the thumb!

Having always been certain that the large antlers of the males' jaws were merely for wrestling each other, I had assumed that their large size meant that the leverage required to break human skin was not available. The specimen in question was only moderately large, but the inward-pointing spine about one-quarter from the tip of each mandible was very large and very sharp; it was this prong which "pranged" my thumb. I must admit, however, that it was my own curiosity which led the beetle to bite me. Whilst rooting for my notebook against which to measure his length, I placed him on my necktie to have both hands free. Mr beetle immediately took about biting at the Italian silk weave in an almost ferocious way. Seeing the size and shape of its antlers, I deliberately thrust my thumb into its jaws to see what would happen. Ouch!—RICHARD A. JONES, 135 Friern Road, East Dulwich, London SE22 0AZ (E-mail: bugmanjones@hotmail.com).

Predation by bird (White-breasted Woodswallow, *Artamus leucorynchus*) on butterfly (*Papilio* species) in Kuching, Sarawak (Borneo)

On 18 November 1999, my wife and I were drinking coffee in the coffee house attached to the Merdeka Palace Hotel in the centre of Kuching, Sarawak, on the island of Borneo, looking out onto a large central square of open grass with several tall trees on the perimeter. A pair of White-breasted Woodswallows *Artamus leucorynchus* were active around one of these trees, swooping down from the bare upper branches, about 30 metres above ground, to catch insects, returning to their vantage point after each foray.

A pair of butterflies *in copula*, with one (the female?) suspended below the other, were seen flying across the road and over the grass. They appeared to be *Papilio polytes* L., although the possibility of one of the other Bornean black-and-white *Papilio* species (*fuscus* Goeze; *iswara* White; *helenus* L.; *nephele* Boisduval) is not discounted. One of the woodswallows left its perch and, following a long and swift downwards loop, removed the inert (suspended) butterfly from the pair with clinical precision. The butterfly remaining seemed almost unaware that it was now alone and continued its slow flight, without being obviously alarmed. Predation by birds on various insects, including butterflies, is known to take place but individual instances appear to be infrequently documented.—W. JOHN TENNENT, 38 Colin McLean Road, Dereham, Norfolk NR19 2RY (E-mail: jt@storment.freemove.co.uk).

**PELOMYIA OCCIDENTALIS WILLISTON (DIP.: TETHINIDAE)
NEW TO BRITAIN AND GERMANY**

¹A. G. IRWIN, ²J. H. COLE AND ³W. A. ELY

¹ Castle Museum, Norwich, Norfolk NR1 3JU.

² 2 Lenton Close, Brampton, Huntingdon, Cambridgeshire PE28 4TR.

³ Rotherham Biological Records Centre, Norfolk House, Walker Place, Rotherham S65 1AS.

Introduction

IN 1979 AND 1982, several unfamiliar tethinids were caught by AGI at Walton-on-Naze, Essex. These were identified as belonging to the genus *Pelomyia*, which had not previously been recorded from the Palaearctic region. The species was found to be identical to a North American species, but establishing the correct name of this species proved difficult. Examination of the types showed that the nomenclature of North American *Pelomyia* was very confused, but that the correct name for the British flies was *Pelomyia occidentalis* Williston, a species first described from California in 1893.

In 1913, Melander (incorrectly) declared *P. occidentalis* a synonym of *P. coronata* (Loew, 1865) and it was using the latter name that Szadziewski (1983) recorded *Pelomyia* from Poland. In 1980, Hardy and Delfinado described *P. steyskali* from Hawaiian and North American material, having concluded that their species was different from *P. coronata*. Roháček (1992) recorded *P. steyskali* from Czechoslovakia and Hungary, and also referred Szadziewski's records to this species. None of these recent authors had examined the types of *P. coronata* or *P. occidentalis*, but had simply accepted the synonymy which had been repeated in the literature since Melander (1913).

Further specimens of *Pelomyia* were caught in Britain between 1982 and 1997, but the publication of these records was delayed until the nomenclatural problems were cleared up. A complete revision of *Pelomyia* is being published by Foster and Mathis (in press). They show that *P. occidentalis* is a good species, not the same as *P. coronata*, and that *P. steyskali* is a junior synonym of *P. occidentalis*. All the previously published records of *Pelomyia* from Europe and Hawaii (Mathis & Munari, 1996) should be assigned to *P. occidentalis*. Now that the taxonomy of the genus has at last been sorted out, it is possible to present an account of the occurrence of *Pelomyia* in Britain, together with a record from Germany.

The holding collections are as follows:

- DAS – D.A.Smith private collection
- JHC – J.H.Cole private collection
- NCM – Castle Museum, Norwich
- NHM – Natural History Museum, London
- UMO – Hope Entomological Collections, Oxford University Museum of Natural History
- WAE – W.A.Ely private collection

***Pelomyia occidentalis* Williston, 1893**

ENGLAND: MIDDLESEX: Isleworth, TQ1575, 5 - 21 May 1999, J. W. Ismay, partially clear dry grassland (20♂ 8♀ UMO, NCM).

ESSEX: Thurrock, TQ5876, 11 August - 20 September 1996, P. Harvey, pan traps in *Phragmites* bed and on sea wall, pitfall trap beside lagoon (7♂ 1♀ DAS); Purfleet, Dolphin Quarry, TQ565786, 5 September 1995, C. W. Plant, swept from short vegetation on cliff-top of chalk quarry (1♀ UMO); Colne Point, TM1112, 28 August - 1 November 1991, P. Harvey, pitfall trap in dunes (1♀ DAS); Walton-on-Naze, TM2623, 9 August 1979 & 3 August 1982, A. G. Irwin, swept from dry saline dykes behind sea-wall, from sparse vegetation beside lagoon and from grass on low sandy cliffs (6♂ 3♀ NCM); Walton-on-Naze, TM2624, 11 August 1992, D. A. Smith, swept saltmarsh and sand dune (1♂ DAS).

LINCOLNSHIRE: Chapel St Leonards, TF5672, 15 August, 1997, W.A. Ely, swept from stabilised dunes and low sandy cliffs (1♀ WAE).

S. YORKSHIRE: Rotherham, SK426931, 7 August 1991, W.A. Ely, swept open scrub on dry soil on urban wasteland close to railway line (1♀ WAE).

DURHAM: Horden Cliffs, NZ456409, 21 July 1982, J. H. Cole, herb-rich soft cliffs (2♂ 2♀ JHC).

GERMANY: LOWER SAXONY: Lüneburger Heide [Luneburg Heath], near Munster Lage, 15 June - 7 July 1960, J. C. Deeming (1♂ NHM). This specimen is particularly interesting as it represents the first known specimen from Europe, predating the earliest record in Roháček (1992) by at least two weeks.

Identification

Mathis and Munari (1996) provide a key to tethinid genera. In Collin's key to the British Tethinidae (Collin, 1960), *Pelomyia* will run to *Pelomyiella*, from which it can be separated by the presence of a shining peristomal ridge, weak acrostichal bristles and just one fronto-orbital bristle. Amended couplets are as follows:

1 (4) Genae bearing few to many scattered setulae above the ventral row of peristomal setae. Acrostichal setulae sparse or absent *Pelomyiinae*

2 (3) 2 fronto-orbital setae (though the anterior seta in *P. mallochi* is very short and weak, sometimes difficult to see), face and peristoma microtomentose, without shiny stripes. Acrostichal setulae absent
Pelomyiella

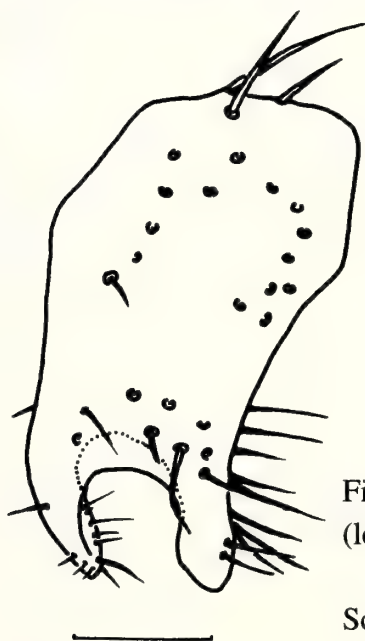
3 (2) 1 strong fronto-orbital seta, face with 2 narrow shiny stripes ventrally, each continuous with a shiny peristomal ridge (Fig. 1). A few short and weak acrostichal setulae present *Pelomyia*

4 (1) Genae bare except for a row of ventral or near-ventral peristomal setae. Acrostichal setulae in two or more complete or nearly complete rows. *Tethininae*

Fig. 1. *Pelomyia occidentalis* head.

Scale line 0.1 mm.

Only one species of *Pelomyia* has been found outside the Americas, but it is conceivable that another species may be introduced to Europe at some time. *P. occidentalis* can be told from other known species by the following combination of characters: mesonotum grey-dusted with brown stripes along the dorsocentral and acrostichal rows; fore-coxa white with white dusting; all femora and tibiae dark with grey/brown dusting, at most slightly paler on basal half. In addition the male epandrium is distinctive, having bifurcate ventro-lateral lobes (Fig. 2). Two other species have a similar epandrium, but in both of these the mid-tibia is entirely yellow.

Fig. 2. *Pelomyia occidentalis* epandrium (left lateral view).

Scale line 0.1 mm.

Biology and history

Nothing is known of the immature stages of *Pelomyia*. *P. occidentalis*, like its close relative *P. coronata*, is widely distributed in North America, although there are fewer records from the eastern states. It is often associated with water, although not always, and the water quality varies, from fresh to saline

and from clean to polluted (Foster & Mathis, in press). The British records support this impression and complement the other European records which are from comparable, though different habitats. Szadziwski's (1983) records are from inland *Salicornia* marshes in Poland, whereas all the Czechoslovak specimens were from synanthropic habitats - "water badly polluted by rotting communal waste", slaughterhouses and a mink farm (Roháček, 1992).

Until something is known about its life-history, it would be difficult to even speculate on the mechanism of this species' dramatic range expansion, but it seems certain that it will become established at many more sites in Britain and Europe.

Acknowledgements

We thank the following curators for providing access to material in their care: P. Wygodzinsky (American Museum of Natural History, New York), B.H. Cogan (Natural History Museum, London), K. Jepson and C. Vogt (Museum of Comparative Zoology, Harvard), W.N. Mathis (National Museum of Natural History, Washington), U. Aspöck (Naturhistorisches Museum, Wien). L. Munari (Museo Civico di Storia Naturale, Venezia) checked identifications for WAE. J.C. Deeming (National Museum of Wales, Cardiff), P. Harvey (Grays, Essex), J.W. Ismay (Hope Entomological Collections, Oxford), C.W. Plant (Bishops Stortford, Herts) and D.A. Smith (Romford, London) kindly allowed us to include their records in this paper. C.W. Plant, D.A. Smith and L. Munari made helpful comments on earlier drafts of this paper.

References

- Collin, J.E. 1960 British Tethinidae (Diptera). *Entomologist* **93**, 191-193
- Foster, G.A. & Mathis, W.N. (in press) A revision of the genera *Masoniella* Vockeroth and *Pelomyia* Williston (Diptera: Tethinidae). *Smithsonian Contributions to Zoology*.
- Hardy, D.E. & Delfinado, M.D. (editors) 1980 *Insects of Hawaii* Volume 13 Diptera : Cyclorhapha III. Series Schizophora section Acalypterae, exclusive of family Drosophilidae. 451 + vii pages. The University Press of Hawaii, Honolulu.
- Loew, H. 1865 Diptera Americae septentrionalis indigena. Centuria sexta. *Berliner entomologische Zeitschrift* **9**, 127-186
- Mathis, W.N. & Munari, L. 1996 World catalog of the family Tethinidae (Diptera). *Smithsonian Contributions to Zoology* **584**, 1-27
- Melander, A.L. 1913 A synopsis of the dipterous groups Agromyzidae, Milichiinae, Ochthiphilinae and Geomyzinae. *Journal of the New York Entomological Society* **21**, 219-300
- Roháček, J. 1992 Tethinidae (Diptera) of Czechoslovakia: a faunistic survey. *Časopis Slezského Muzea v Opava (A)* **41**, 127-131
- Szadziwski, R. 1983 Flies (Diptera) of the saline habitats of Poland. *Polskie Pismo Entomologiczne* **53**, 31-76
- Williston, S.W. 1893 List of Diptera of the Death Valley Expedition. In C.V. Riley, The Death Valley Expedition. A biological survey of parts of California, Nevada, Arizona and Utah. Part II. 4: 253-259. Report on a small collection of insects, made during the Death Valley Expedition. *North American Fauna* **7**, 235-268

**CHLOROCLYSTA TRUNCATA HUFN. (LEP.: GEOMETRIDAE):
A REMARKABLE INCREASE IN THE INCIDENCE OF
F. RUFESCENS STROM. AT DARTFORD**

BRIAN K. WEST

36 Briar Road, Dartford, Kent DA5 2NH.

OVER MUCH OF the British Isles, *Chloroclysta truncata* is polymorphic with the relative incidence of the forms varying geographically; superimposed upon this pattern many industrial areas have developed additional melanic forms. North-west Kent is an adjacent of the urban industrial conurbation of London and it has a very different *truncata* population from that of rural east Kent some forty miles distant.

This paper may be considered a sequel to West (1996) in which the forms of *truncata* found in north-west Kent were described and illustrated in colour. The decline in atmospheric pollution consequent upon the implementation of the Clean Air Acts has occasioned considerable changes in the relative incidence of the various forms.

In 1996, it was noted that the two most extreme melanic forms were in decline: f. *nigerrimata* Heydemann had declined from about 20% in the 1970s to less than 6%, and f. *mixta* Prout from about 20% to below 4% over the same period. Both were surviving at about 1% in 2000. It may be recalled that f. *mixta* is a *rufescens*-like insect lacking the minute white markings and also having more melanistic hindwings.

Since 1996, f. *perfuscata* Haw. has declined from almost 50% to 36% in 2000 (Table 1), and at Dartford is no longer the commonest form. The decline was anticipated and it was thought that its place would gradually be filled by pale forms, particularly *saturata* Steph. and the even paler *griseofasciata* Müll. or perhaps by the appearance of *russata* Hb., noted as common in rural east Kent by Chalmers-Hunt (1971). However, this has not occurred and instead the void has been filled largely by f. *rufescens* identical to that illustrated by Skinner (1984), which until very recently has been the only variety of the *rufescens* complex, other than *mixta*, that has been observed at Dartford. This particular variety seems to be largely confined to the main industrial areas, whereas those illustrated in South (1939), Ford (1955) and Barrett (1902), with a more diffuse and sometimes more yellowish, orange-brown blotch and a greater intensity of the white markings, predominate in rural areas. The form *ochreata* Schille better describes these paler and more varied insects, and *fusco-rufescens* Prout the slightly melanistic form depicted by Skinner.

In 1993, f. *rufescens* comprised 17% of the *truncata* at Dartford. From 1994 until 1998, inclusive, the incidence remained between 20% and 23%, increasing in 1999 to 36.8% and in 2000 to 46.5%, a phenomenal increase over a period of two years, and quite unanticipated. Also, in the last two years, a small number of these *rufescens* did not conform to the model depicted by

Skinner, i.e., *fusco-rufescens*, but to the models illustrated in the other textbooks mentioned above, i.e., approaching *ochreata*. This may be regarded as a minor change towards a less melanistic *truncata* population here accompanying the decline of *perfuscata* and other melanic forms.

The anticipated increase in the incidence of the greyish *saturata* has not materialised to any great extent; it increased from 6.7% in 1993 to 10.7% in 1995, but has averaged only 9.7% for the six years from 1995 to 2000. The paler *griseofasciata* was not recorded here until the noting of a singleton in 1993, to be followed by another in 1998, two in 1999 and three in 2000.

It is essential, when monitoring the forms of a polymorphic species, that they be readily identifiable and can be allocated to a distinct named form. At Dartford in the 1970s, *rufescens*, having separated *mixta*, presented a homogeneous and distinct form; in retrospect it would seem that *fusco-rufescens* might have been the preferable name for these darker specimens

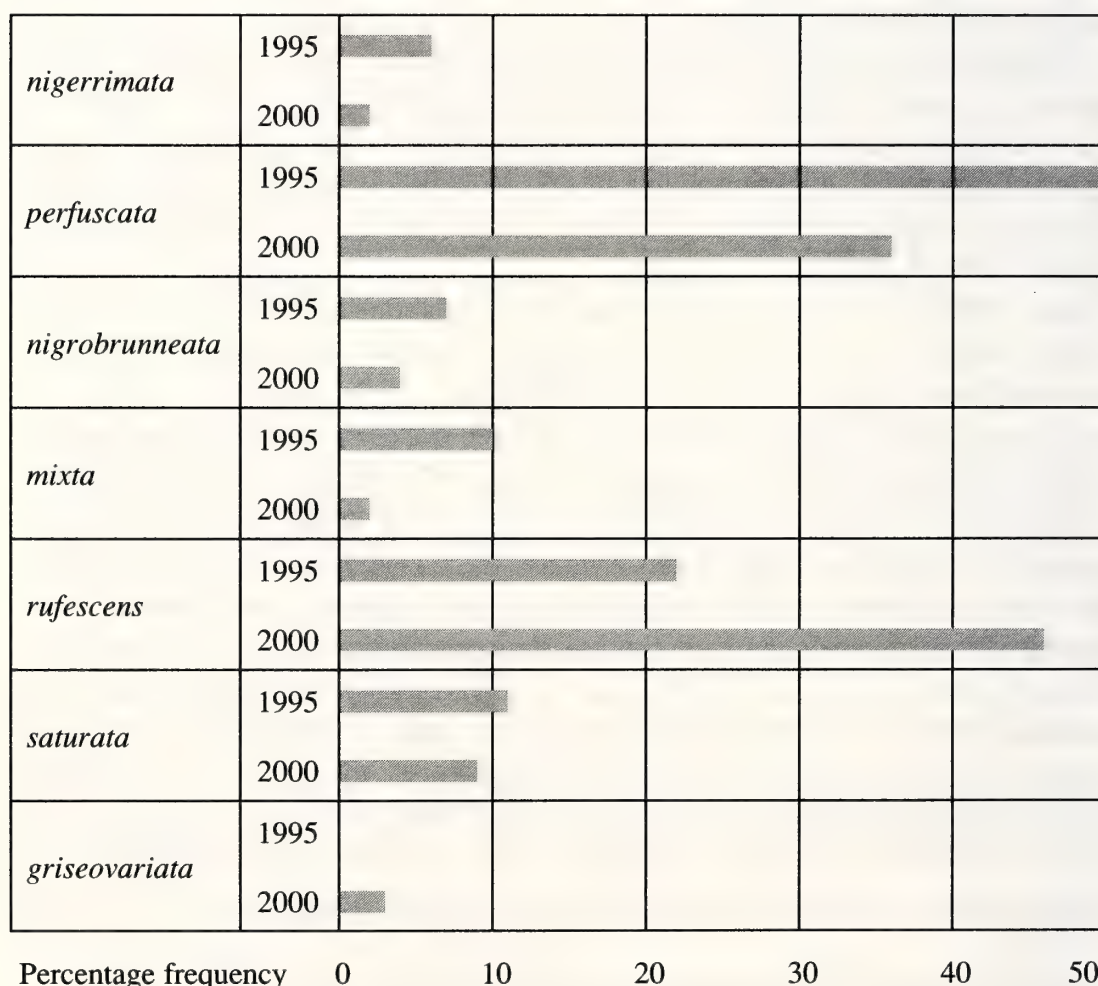


Table 1. Relative incidence of all forms of *Chloroclysta truncata* at Dartford in 1995 and 2000.

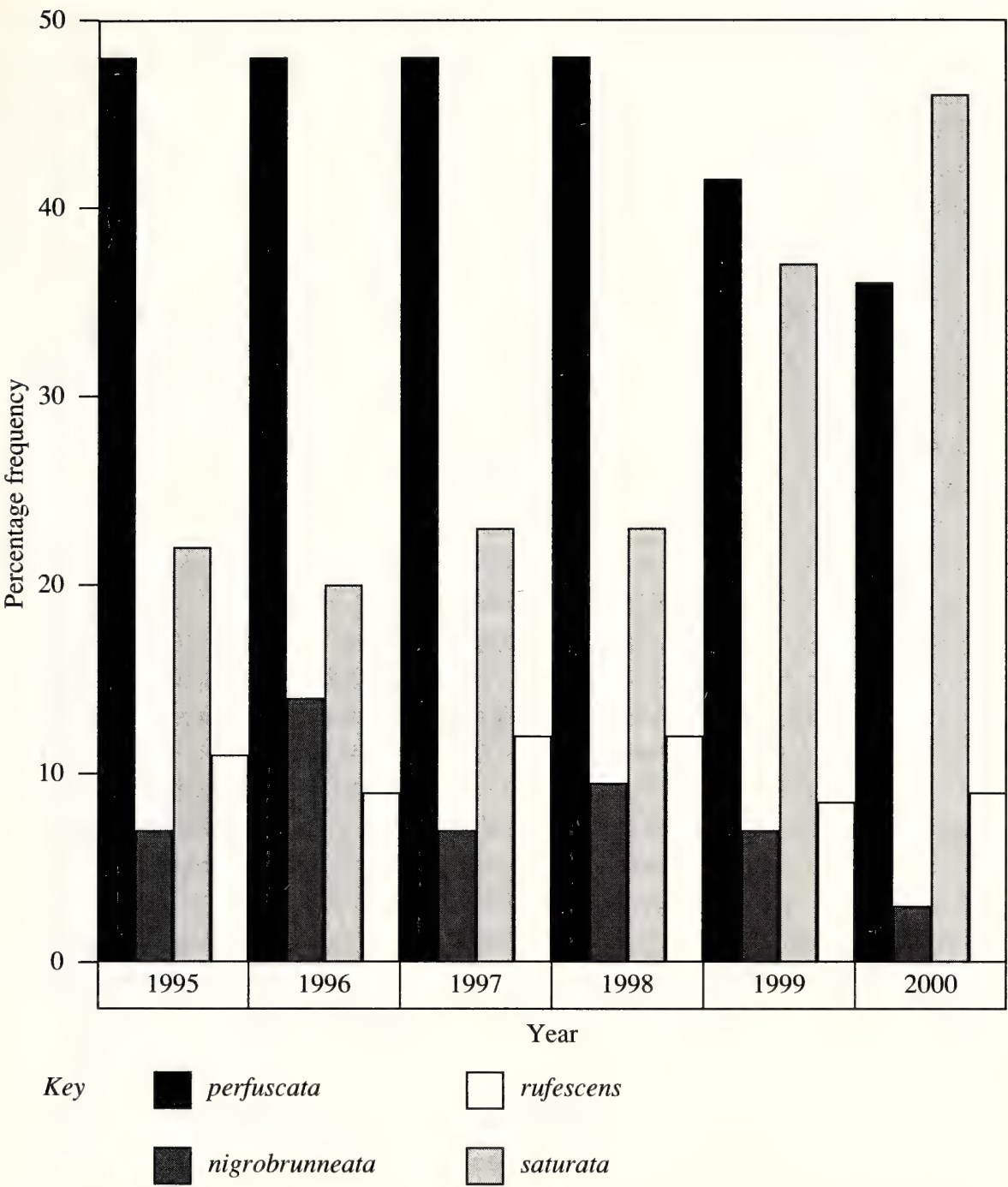


Table 2. Annual relative incidence of the four major forms of *Chloroclysta truncata* at Dartford, 1995 to 2000.

characteristic of industrial areas suffering from considerable atmospheric pollution. Over the years a more difficult problem has arisen with forms *perfusata* and *nigrobrunneata* Heydemann; many specimens, especially when worn, are difficult to separate as the brown areas on the forewing tend to be darker than is customary with specimens from non-urban localities. Being a dark form, *nigrobrunneata* has declined relatively, and to a greater extent than *perfusata*. In 2000, the combined percentage of these two forms

had become less than that of *rufescens*, whereas in 1993 the combination of these two dark forms at over 60% was more than three times as common as *rufescens* which then was 17.3%.

Thus, the changing pattern of polymorphism in *C. truncata* at Dartford for some time in the future will remain an intriguing picture, somewhat unpredictable, regarding its speed and direction.

References

- Barrett, C., 1902. *The Lepidoptera of the British Islands*, Lovell, Reeve & Co, London.
Chalmers-Hunt, J. M., 1970. *Entomologist's Rec. J. Var. (Suppl.)* 82: 59.
Ford, E., 1995. *Moths*. Collins.
Skinner, B., 1984. *Colour Identification Guide to Moths of the British Isles*. Viking.
South, R., 1939. *The Moths of the British Isles*. Warne.

Clouded yellow breeding in urban London

A nearly fully grown caterpillar of the Clouded Yellow butterfly *Colias croceus* was swept from one of the many lucerne plants sprouting from between heaps of bulldozed earth, crushed brick and other assorted rubble on a derelict site on the River Thames at Woolwich, south-east London, (OS grid reference TQ 431793, Vice County 16 – West Kent), on 1.viii.2000. Although a regular migrant to Britain, appearing throughout much of the country, in urban London I have only ever seen this butterfly on derelict “brownfield” sites adjacent to the Thames. These sparsely-vegetated but floristically diverse areas of bare earth, crushed brick and twisted metal are surprisingly rich in scarce and unusual warmth-loving invertebrates.— RICHARD A. JONES, 135 Friern Road, East Dulwich, London SE22 0AZ. (E-mail: bugmanjones@hotmail.com)

Callistus lunatus (F.) (Col.: Carabidae) at Box Hill in 1964

Among some insects lately shown to me by my friend Keith Lewis I was much surprised to see an example of this beautiful and now very rare ground-beetle, which he had taken at Box Hill, Surrey, on 25 August, 1964. It was found under cover of some sort – possibly a chalk stone. This is one of the only two records for the area, and indeed anywhere, since a specimen was taken at Shoreham, West Kent, in 1953 and, not long after, a small colony was found at Brook near Wye, East Kent, by C. A. W. Duffield.

As my friend Prof. J. A. Owen has remarked, it is a curious fact that the chalk-loving *C. lunatus* is not known to have ever occurred on the South Downs – e.g. in Sussex – but only on the North Downs (from the London district to Folkestone and Dover) and the Chilterns, perhaps once only (Streatley, J. R. Tomlin).— A. A. ALLEN, 49 Montcalm Road, Charlton, London SE7 8QG.

**THE WALL BROWN *Lasiommata megera* L.
(LEP.: NYMPHALIDAE) IN NORTHUMBERLAND, 1976-2000**

H. A. ELLIS

16 Southlands, Tynemouth, North Shields NE30 2QS

Introduction

IN RECENT YEARS there seems to have been a decline in the fortunes of the Wall Brown *Lasiommata megera* L. in much of England, particularly in the southern centre of its range (Goodhand, 1999). Recently, Tyler-Smith (2000) has drawn attention to a serious decline over the last twenty years within northern Oxfordshire and northern Buckinghamshire and was able to record only two Wall Brown butterflies there in twenty-five tetrads during 1997-99. In spite of a statement to the contrary (Tyler-Smith, 2000), it should be stressed that this remarkable decline has not occurred nationally. Here in north-east England, after a decline in the 19th century (Robson, 1899; Dunn & Parrack, 1986), there has been a notable improvement in the status of the Wall Brown since the 1970s. The species has rapidly extended its range and increased in numbers, initially in County Durham (Dunn, 1974; Dunn & Parrack, 1986) and subsequently in Northumberland (Ellis, 1994).

The purpose of the present paper is to illustrate how the Wall Brown has become established and continues to thrive in Northumberland by reference to my own experience of the species during the past twenty-five years.

Methods

Information concerning the dates and locations of butterfly sightings and the numbers of butterflies was extracted from personal diaries and species record cards kept since 1964. Comparisons of the mean values of the various groups of data have been made using the Student's "t" Test. Means are stated as mean \pm Standard Error (S.E.). The correlation coefficient (r) has been calculated to test the significance of any apparently linear relations.

Results

The data obtained are summarised in Table 1.

The recent history of the Wall Brown in Northumberland may be conveniently divided into three phases covering the years 1976-80, 1981-90 and 1991-2000, respectively.

1. 1976-80, Early beginnings

In spite of visiting many suitable locations from 1964, including some where the Wall Brown subsequently appeared, it was not until 1976 that I encountered my first (3) Wall Brown butterflies in Northumberland on the banks of the River Tyne estuary at Tynemouth. None was seen again until

1978 when four were recorded, two at Tynemouth and one each at nearby North Shields and at Whitley Bay on the coast about 6.5km further north. There were seven sightings in 1979, including six at the original Tynemouth location in 1976. One of two records in 1980 was also at Whitley Bay but the other was near the coast about 25km further north at Cresswell. At the time these records were totally unexpected and were referred to the Biological Records Centre, Monks Wood for inclusion in the *Atlas of Butterflies* (Heath, Pollard & Thomas, 1984).

Year	Number of Wall Brown		Number of tetrads		
	Total	Maximum/visit	Total	New	Accumulated
1976	3	3	1	1	1
1977	0	0	0	0	1
1978	4	1	3	3	4
1979	7	6	2	0	4
1980	2	1	2	2	6
1981	14	5	5	4	10
1982	73	48	7	1	11
1983	32	30	3	1	12
1984	42	24	7	3	15
1985	13	6	4	2	17
1986	10	6	3	1	18
1987	15	9	4	2	20
1988	13	10	3	2	22
1989	49	12	8	1	23
1990	65	16	12	2	25
1991	86	26	13	7	32
1992	129	35	18	4	36
1993	87	23	12	2	38
1994	157	63	16	1	39
1995	89	14	19	3	42
1996	154	46	27	5	47
1997	70	13	16	0	47
1998	67	28	13	4	51
1999	205	30	22	3	54
2000	168	25	23	1	55

Table 1. Numbers of Wall Brown butterflies and tetrads recorded in Northumberland from 1976 to 2000.
Totals: 1,554 butterflies within 55 different tetrads.

Overall, during 1976-80 only 16 (annual mean, 3.3±1.2) Wall Brown butterflies were noted at seven different locations within six tetrads (2km × 2km square). At many sites I visited in the county none was seen, although other species of butterfly were noted in what appeared to be suitable habitats for the Wall Brown. Thus I recorded one or more species of butterfly within 49 different tetrads during the five-year period and the Wall Brown was found

in only six (12.2%) of these. Most of the individuals recorded (14, 87.5%) were of the summer (second) brood and the maximum seen at any one visit was six at Tynemouth estuary in September 1979.

2. 1981-90, The Wall Brown becomes established

During this decade the Wall Brown was recorded in increasing numbers at additional locations and further afield. Although most of the recorded tetrads continued to be in the south-east corner of Northumberland (VC 67), there were occasional records from further inland, for example, on wasteland in Newcastle-upon-Tyne (August 1981) and in an old limestone quarry at Brunton Bank near Chollerford (May 1984), which are situated about 12km and 44km west of Tynemouth, respectively. The Wall Brown was also recorded at the coast much further north near Howick at Cullernose Point (September 1986), which is about 50km north of Tynemouth.

The annual number of Wall Brown fluctuated considerably from 10 to 73 (mean, 32.6 ± 7.4), with the period 1985-88 being poor years whilst 1982 (73), 1984 (42), 1989 (49) and 1990 (65) were particularly good years. These high annual counts were mostly attributable to the presence of unusually large numbers at some locations, for example, 48 on the banks of the old World War II coastal firing range at Whitley Bay (August 1982) and 24 at Holywell Dene Seaton Sluice (September 1984). A total of 326 Wall Brown butterflies was recorded over the decade.

Comparison of the mean annual numbers of Wall Brown butterflies in the two phases 1976-80 (mean, 3.2 ± 1.1) and 1981-90 (mean, 32.6 ± 7.4), reveals a significant increase in the latter period ($0.02 > P > 0.01$). Within the decade 1981-90 there was much annual fluctuation in numbers and there is no significant difference between the means for the first (34.8 ± 11.0) and second (30.4 ± 11.2) five-year periods ($P > 0.10$).

The Wall Brown was found in from three to 12 tetrads each year during 1981-90. There were from one to four new tetrads per annum and a total of 19 new tetrads over the decade.

The accumulative 15-year totals for the first two phases, 1976-80 and 1981-90 were 342 Wall Brown butterflies recorded within 25 different tetrads.

3. 1991-2000, The Wall Brown thrives

During this decade the Wall Brown was recorded in increasing numbers and in more tetrads. The annual number of butterflies varied from 67 to 205 (mean, 121.2 ± 15.1), with particularly high counts in 1994, 1996, 1999 and 2000 (Table 1). These high counts occasionally resulted from there being unusually large numbers of butterflies at a single site, but were often because of the presence of the species at many locations. Over the decade 1,212 Wall Brown butterflies were recorded, which is a figure $3.7 \times$ that for the previous decade (326), representing a significant increase in the mean annual numbers

for 1991-2000 (mean, 121.2 ± 15.1) in comparison with 1981-90 (mean, 32.6 ± 7.4) ($P < 0.001$). Although more Wall Brown were recorded in the last two years of the survey (1999 & 2000), suggesting a continued improvement, comparison of the mean annual numbers for the first (mean, 109.6 ± 14.3) and second (mean, 132.8 ± 27.5) five-year periods of the decade 1991-2000 reveals no significant difference ($P > 0.10$) (Figure 1.)

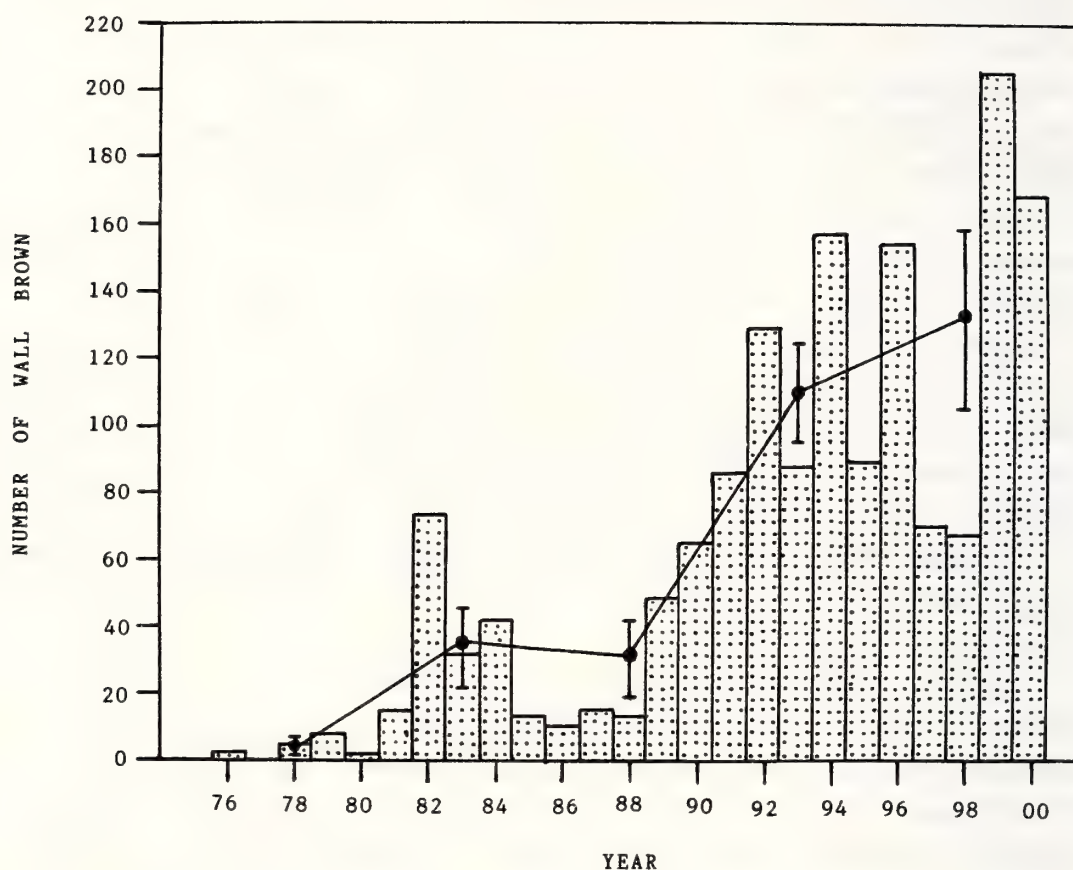


Figure 1. Histogram showing the number of Wall Brown butterflies recorded in Northumberland in each of the twenty-five years 1976 to 2000. The mean \pm standard error value for each of the five consecutive quinquennia is superimposed.

During 1991-2000 the Wall Brown was recorded in 49 different tetrads with a range of 12 to 27 tetrads per annum. From one to seven new tetrads were found each year with a total of 30 new tetrads over the decade (Table 1).

In 1996 I recorded all species of butterfly within 63 different tetrads in Northumberland and the Wall Brown in 27 (41.3%) of these. In the final year of the survey (2000) I recorded the Wall Brown in 23 (50%) of the 46 tetrads in which I recorded all species of butterfly in Northumberland. Both these compare favourably with the situation in the early years 1976-80 when, as stated above, the Wall Brown was sighted in only six (12.2%) of 49 tetrads.

The combined totals for the three phases over the twenty-five years of the study were 1,554 Wall Brown butterflies within 55 different tetrads. Overall there was a trend upwards with time as shown in Figure 1 which is a

histogram of the number of Wall Brown butterflies in each of the twenty-five years together with the mean values (mean \pm S.E.) for the successive quinquennia.

Numbers of Wall Brown at individual visits

The number of butterflies recorded at the time of a single visit was variable and commonly there were only one or a few. The data for the two quinquennia 1991-95 and 1996-2000 summarised in Table 2. are representative.

Numbers of Wall Brown	Numbers of records (%)		
	1991-95	1996-2000	1991-2000
1	47 (43.5)	63 (43.4)	110 (43.5)
2-5	29 (26.9)	50 (34.5)	79 (31.2)
6-10	19 (17.6)	16 (11.0)	35 (13.8)
11-15	5 (4.6)	10 (6.9)	15 (5.9)
16-20	0 (0)	1 (0.7)	1 (0.4)
21-25	5 (4.6)	2 (1.4)	7 (2.8)
26-30	1 (0.9)	2 (1.4)	3 (1.2)
31-35	1 (0.9)	0 (0)	1 (0.4)
>36	1 (0.9)	1 (0.7)	2 (0.8)
Totals	108 (100)	145 (100)	253 (100)

Table 2. Distribution of the numbers of Wall Brown butterflies recorded at each visit during the quinquennia 1991-95 and 1996-2000.

Flight periods and seasonal numbers

The first (spring) and second (summer) flight periods were distinct with a clear-cut interval during much of July. The earliest sighting was at the Spetchells, Wylam – a warm sheltered inland location in south Northumberland on 23 April 1995 and the latest further north at Bebside near Bedlington on 11 October 1986. However, most butterflies of the first brood appeared during the second week of May and remained on the wing until the last week of June or the first week in July, by which time most appeared very worn. The second brood appeared during the last few days of July and in early August and most disappeared by the third to fourth week in September. For example, in the decade 1991-2000, the earliest and latest sightings for the first and second broods were 23 April-31 June and 30 July-23 September, respectively. There did not appear to be any consistent change in the duration of either of the two flight periods over the years and there was no evidence of a third brood in any year.

In general, fewer butterflies were recorded in the first than in the second brood. Overall, from 1976-2000, of the 1,554 Wall Brown butterflies 259

(16.7%) and 1,295 (83.3%) were recorded in the first and second broods, respectively; a ratio of 1:5. Although in some years there were unusually large numbers recorded in the first brood (1997, 47.1%; 1998, 56.7%), the combined data for each of the five successive quinquennia were similar (Table 3).

Years	Total	Numbers of Wall Brown	
		Spring (%)	Summer (%)
1976-80	16	2 (12.5)	14 (87.5)
1981-85	174	21 (12.1)	153 (87.9)
1986-90	152	27 (17.8)	125 (82.2)
1991-95	548	74 (13.5)	474 (86.5)
1996-00	664	135 (20.3)	529 (79.7)
Combined	1554	259 (16.7)	1295 (83.3)

Table 3. Numbers and percentages of Wall Brown butterflies recorded in the spring (first) and summer (second) broods in Northumberland during each of the five consecutive quinquennia from 1976 to 2000.

Relation between numbers of Wall Brown and numbers of tetrads

Plotting on a graph the pairs of values for the number of tetrads and the corresponding year reveals an approximate straight line. Calculation reveals a significant positive linear correlation ($r = 0.885$; $P < 0.001$). A similar plot of paired values for the number of Wall Brown and corresponding year reveals a positive trend, but this appears curvilinear rather than linear and individual points are widely scattered and calculation of the linear regression coefficient is inappropriate. A plot of the numbers of Wall Brown against the numbers of tetrads reveals a scatter about an approximate straight line and calculation shows there is a highly significant positive linear correlation ($r = 0.928$; $P < 0.001$).

Discussion

As the present records show the Wall Brown often occurs in small numbers at any given location and for this reason may be overlooked (Emmet & Heath, 1989). Although my records are not based on regular "transect walks" (Pollard, Moss & Yates, 1995), I have made a thorough search of each locality visited. Whilst not suitable for full population studies the data provide a reasonably reliable indication of the presence or absence of the species at a given site. Indeed a prolonged search may occasionally be of greater value than a relatively shorter and more restricted "transect walk", in determining the presence of a species which occurs in small numbers at a given location.

Most of my Wall Brown records relate to south-east and east Northumberland (VC 67) with only a few tetrads (four of 55) recorded in

north-Northumberland (VC 68). The northernmost record was on the east coast at Cullernose Point (NU 261187) and the westernmost at Brunton Bank Quarry near Chollerford (NY 929701). In general the mid and western parts of VC 67 and much of VC 68 have been less-well recorded. Hence it is uncertain that the relative lack of Wall Brown records in North Northumberland (VC 68) is a true indication of the status of the species or, is partially attributable to under-recording. However it should be noted that the region has not been entirely overlooked by recorders who, like myself, have noted many other species of butterfly over many years and particularly during deliberate searches carried out as part of the Millennium Map Project. I believe that to date the Wall Brown has not recolonised North Northumberland to the extent which it has in the south and east of South Northumberland. This view accords with the observation that the Wall Brown is not becoming commoner further north over the border in East Scotland, where there has been only one record during the recording for the *Millennium Atlas* (R. Buckland, pers. comm.). My data accumulated over twenty-five years since 1976 indicate that the Wall Brown has successfully recolonised at least parts of Northumberland and where it has done so it now flourishes with no evidence of a regional decline up to the 2000 season.

This is in marked contrast to the reported serious decline which has occurred in central southern England (Tyler-Smith, 2000). In this respect it is interesting to compare Tyler-Smith's data and mine for the three years 1997 to 1999. During this period in Northumberland I recorded 342 individual Wall Brown butterflies within 29 different tetrads whilst Tyler-Smith recorded only two in 25 tetrads in northern Oxfordshire and northern Buckinghamshire!

Reasons for the fluctuations in the fortunes of the Wall Brown

The reason for the 19th century decline and recent upturn in the fortunes of the Wall Brown in Northumberland are a matter for speculation. It is tempting to believe that the 19th century decline, which also affected other species such as the Comma *Polygonia C-album* (L.), resulted from a series of changes, including the marked deterioration in the weather (Holford, 1982), and the loss of habitats and atmospheric pollution associated with increasing industrialisation which occurred at that time. Contrariwise, the recent improvement in the status of the Wall Brown might be due to climate and weather changes which have resulted from global warming (Dennis & Bramley, 1985; Dennis, 1993; Ellis, 1994; Pollard, Moss & Yates, 1995; Parmestan *et al*, 1999). The view that there is some general underlying factor which is responsible, such as climatic change, gains support from the recent parallel improvements which have taken place in the status of several other species of butterfly in Northumberland. The Orange Tip *Anthocaris cardamines* (Verity), Peacock *Inachis io* (L.) and Large Skipper *Ochlodes venata* (Bremer & Grey) have all become more frequent and widespread in

recent years (Ellis, 1998), whilst the Small Skipper *Thymelicus sylvestris* (Poda) has colonised the region from further south probably for the first time (Ellis, 1999a) and the Comma has returned from further south to recolonise much of Northumberland (Ellis, 1999b; Ellis & Waller, 2000).

Although the overall trend during the past twenty-five years has been upwards there have been times at some localities when, in spite of repeated visits, numbers were found to be low or no Wall Brown butterflies were recorded after it had been known to be present in previous years. These fluctuations sometimes occurred synchronously in neighbouring locations, for example, the temporary decline, noted at the bank of the River Tyne estuary and at the coast about 6.5 km further north at Whitley Bay from 1985-1989. Often there was no obvious explanation for these temporary declines, but sometimes severe weather conditions such as the extremely wet months of June in 1980 and 1997, which were the wettest on record since 1859, might have played a part. Also, one site overlooking the River Tyne estuary suffered a temporary setback at the time of the Tall Ship Race, June 1986, when additional extensive grass cuttings were made in preparation for the many thousands of visitors who trampled the area.

At some sites, visited for several years, the Wall Brown was initially absent and following its appearance thrived for a few years only to decline later and disappear as the area became overgrown, shaded and unsuitable as a habitat. A few locations became lost completely to building and housing developments.

Clearly, it is an oversimplification to attribute the changing fortunes of any species of butterfly solely to climatic change. Increased temperatures associated with global warming appear to have provided the essential background conditions which have enabled the Wall Brown and other species to exploit the various habitats in the region. Although some habitats have become unsuitable, here in Northumberland we have been fortunate in that many suitable and sometimes interconnected habitats have become available in recent years in the form of reclaimed land from former collieries, waste tips, open-cast mining sites and dismantled mineral railways and wagonways. These sites, particularly former railways, provide an excellent habitat for a wide range of flowering plants and butterflies, and have become of considerable ecological importance. The larvae of the Wall Brown, like those of the Large Skipper and Small Skipper, are grass (Gramineae) feeders. These species, by taking advantage of suitable weather conditions, have rapidly colonised the newly-available habitat with its abundant supply of the larval foodplant and flowering plants for the nectaring adults. The Wall Brown finds such places suitable also because they provide sheltered grassland with areas of bare earth which are necessary for optimal egg-laying. (Dennis & Bramley, 1985). Warm patches of bare ground also provide basking areas which the Wall Brown utilises to regulate body temperature (Thomas & Lewington, 1991).

Apart from the increased numbers and wider distribution of the Wall Brown in Northumberland, I have not observed any other changes which might be attributable to the effects of global warming. The effects of an increased temperature are well-known (Dennis & Shreeve, 1991), and in addition to increased numbers at a site, include shifts in the flight periods and the occurrence of additional broods. In Northumberland a plot of the numbers of Wall Brown records against the corresponding dates shows a characteristic Normal bimodal distribution of a double-brooded species with nothing to suggest a third brood and there is no change in the distribution pattern over the twenty-five years to suggest any extension or shift of the flight periods. The significant positive correlation found between the number of Wall Brown butterflies and the numbers of tetrads occupied over the twenty-five years supports the view that increased spread, rather than increased numbers at individual locations, mostly accounts for the observed success of the species in Northumberland.

Whilst there have always been fluctuations in climate over the years, it now seems to be generally accepted that there is a superimposed alteration on account of global warming. A rise in temperature in northern areas such as Northumberland, where the Wall Brown is reaching the northernmost limit of its range, may be beneficial, whereas a similar rise in the south, especially in drought conditions, could prove disadvantageous because of the possible untoward effects on the larval foodplant, the flowering plants used as a source of nectar or even on the biology of the butterfly itself.

As we are becoming only too aware global warming is not without its undesirable effects on climate and leads to an increased frequency of extreme weather conditions, some of which may be unfavourable for butterflies at a regional or national level. Added to this there are local changes which may affect the suitability of a habitat or even destroy it. It is noteworthy that the Wall Brown is able to survive in sites which appear unsuited to other species of butterfly. Although often found in apparently self-contained colonies the Wall Brown is a well-known nomad (Thomas & Lewington, 1991) and is one of those species with the potential to extend its range when climatic conditions improve (Dennis & Bramley, 1985), as appears to have occurred in Northumberland since 1976.

References

- Dennis, R.L.H., 1993. *Butterflies and climate change*. Manchester University Press, Manchester.
- Dennis, R.L.H. & Bramley, M.J., 1985. The influence of man and climate on dispersion patterns within a population of adult *Lasiommata megera* (L.) (Satyridae) at Brereton Heath, Cheshire (U.K.). *Nota lepid.* **8**(4): 309-324.
- Dennis, R.L.H. & Shreeve, T.G., 1991. Climatic change and the British butterfly fauna: opportunities and constraints. *Biological Conservation* **55**: 1-16.
- Dunn, T.C., 1974. The Wall Brown butterfly. *Vasculum* **59**(4): 41.

- Dunn, T.C. & Parrack, J.D., 1986. The Moths and Butterflies of Northumberland and Durham, Part 1: Macrolepidoptera. *Vasculum* Supplement No. 2. pp.22-23.
- Ellis, H.A., 1994. The status of the Wall Brown butterfly, *Lasiommata megera*, in Northumberland, 1965-91, in relation to local weather. *Trans. Nat. Hist. Soc. Northumbria* **56**: 135-152.
- , 1998. The current status and history of the Large Skipper *Ochlodes venata* Bremer and Grey in Northumberland. *Vasculum* **83**(3): 41-67.
- , 1999a. The Small Skipper *Thymelicus sylvestris* Poda (Lep.: Hesperidae) in North-east England: History and current status. *Entomologist's Rec. J. Var.* **111**: 223-225.
- , 1999b. Return of the Comma *Polygonia c-album* L. (Lep.: Nymphalidae) to Northumberland: Historical review and current status. *Entomologist's Rec. J. Var.* **111**: 227-231.
- Ellis, H.A. & Waller, I.J., 2000. Records of the Comma *Polygonia c-album* L. (Lep.: Nymphalidae) in North-east England from 1995 to 1999. *Entomologist's Rec. J. Var.* **112**: 221-223.
- Emmet, A.M. & Heath, J., 1989. *The Moths and Butterflies of Great Britain and Ireland*. 7(1). Hesperidae-Nymphalidae. Butterflies, Harley Books, Great Horkeley, p.251.
- Goodhand, A., 1999. The mysterious decline of the Wall Brown (*Lasiommata megera*). *Butterfly Conservation News* **71**: 7.
- Heath, J., Pollard, E. & Thomas, J., 1984. *Atlas of Butterflies in Britain and Ireland*. Institute of Terrestrial Ecology, Biological Records Centre Monks Wood. Harmondsworth.
- Holford, I., 1982. *The Guinness Book of Weather Facts and Feats*. 2nd. ed. Guinness Superlatives Ltd., Enfield.
- Parmesan, C., Ryrholm, N., Stefanescu, C., Hill, J.K., Thomas, C.D., Descimon, H., Huntley, B., Kaila, L., Kullberg, J., Tammaru, T., Tennent, W.J., Thomas, J.A. & Warren, M., 1999. Poleward shifts in geographical ranges of butterfly species associated with regional warming. *Nature* **399**: 579-583.
- Pollard, E., Moss, D. & Yates, T.J., 1995. Population trends of common British butterflies at monitored sites. *J. Appl. Ecol.* **32**: 9-16.
- Robson, J.E., 1899. A catalogue of the Lepidoptera of Northumberland, Durham, and Newcastle-upon-Tyne. *Nat. Hist. Trans. Northumberland, Durham, and Newcastle-upon-Tyne* **12**: 28-29.
- Thomas, J. & Lewington, R., 1991. *The Butterflies of Britain & Ireland*. Dorling Kindersley, London. pp. 166-168.
- Tyler-Smith, C., 2000. The Wall Brown *Lasiommata megera* L. (Lep.: Nymphalidae) in central England, 1997-1999. *Entomologist's Rec. J. Var.* **112**: 207-208.

***Sophronia semicostella* (Hb.) (Lep.: Gelechiidae) in North Hampshire**

A specimen of this scarce moth flew to light here on 6 July 2000 and I am grateful to Dr J. R. Langmaid for its identification. This occurrence would seem to represent an eastward extension of its range in VC12. As the foodplant is sweet vernal-grass, *Anthoxanthum odoratum*, a very common plant, it may seem strange that the insect is not seen more frequently.—
ALASDAIR ASTON, Wake's Cottage, Selborne, Hampshire GU34 3JH.

OBITUARY

Edward Frank Hancock (1921-2001)

Edward (“Ted”) Hancock, was born on 6 November 1921 in Gillingham, Kent and died from a stroke on 1 February, 2001, aged 79. Earlier attacks curtailed his mobility, but had not affected communication with a network of entomologists. This correspondence had built up over several years and was mainly specific to the tortricoid moths following his acceptance of the task of producing the species descriptions and maps of this group for what is to be volume 5 of the series *Moths and Butterflies of Great Britain and Ireland* (MBGBI Harley Books). In this role he became one of the band of mainly amateur naturalists responsible for much of this monumental work, following a long-standing British tradition.



Ted’s career was as an industrial chemist working for Glaxo Laboratories Ltd. After leaving school and attending Medway Technical College, he was apprenticed to Boots Chemists from 1938 – 1941. At the end of this time, bombing of Chatham dockyards was at its height and when not rolling pills during the day Ted spent nights on fire-watch duty on the roof of the shop to cope with incendiaries. The front of the shop was severely damaged when a bomb fell in the street on one of these nights, but he escaped personal injury. Final qualification as a pharmacist took place in 1944 with a degree from the Pharmaceutical Society in Bloomsbury, London and in doing so one bronze and two silver medals were awarded, although the receipt of these and the associated ceremony was not held until after the war because of metal shortages.

After qualifying, he joined a research team set up at the University of London to investigate ways of producing penicillin on a larger scale than the level of the petri dish in which Sir Alexander Fleming had first seen it. It was essential for the war effort to be able to treat infection in soldiers and get them back to the front line. It was discovered that the drug could be re-crystallised from certain solvent solutions, but only after the team moved to Cardiff University away from London where bombs and doodlebugs constantly interfered with the flow of experimentation. In this work the team collaborated with American research groups also working on the same project. An agreement had been made between the two governments to share the technology whoever "won" and under this memorandum it did not become patented as a British invention. The romantic notion of being able to save the lives of wounded soldiers was somewhat tarnished by later discovering that priority use for the first batches was to those suffering venereal disease contracted while on leave in Rome! Apparently, this was judged by the War Office to be more efficient in getting otherwise fit soldiers back into the ranks more quickly than those who were physically injured on active duty. Mass production quickly allowed larger quantities to be available for more serious infections.

Ted's career moved from academia to industry, joining Glaxo in 1946, and moving to Barnard Castle, where he met Joyce Bell, a Hexhamshire lass, already on the staff at that factory, marrying in 1947. A move to Ulverston, where a new factory was being built to manufacture penicillin and other antibiotics, was to be permanent. A son was born in 1948, Edward Geoffrey, who was eventually to become a professional entomologist, a career which Ted frequently asserted he would rather have pursued. The English Lake District proved too attractive to accept any offers of promotion that might have meant moving away. Studying natural history as a hobby developed, initially expressed in photographing flowers with an early single lens reflex camera. From about 1963 an interest in insects arose. This meant starting a collection and a library, joining societies and making contact with others locally, nationally and eventually internationally. Other local entomologists were gradually encountered, on one occasion meeting Dr Neville Birkett for the first time while searching for the Duke of Burgundy Fritillary at one of its local strongholds between Ulverston and Kendal. Dr Birkett has made a valuable contribution to the writing of this obituary.

A crucial early milestone can be identified in meeting professionally with John Heath, then working for the Merlewood Station of the Institute of Terrestrial Ecology at Grange-over-Sands. Merlewood needed some laboratory glassware for one of their annual open-day demonstrations and Heath went to Ulverston to negotiate a loan from Glaxo Laboratories. He encouraged the Hancocks, father and son, to adopt scientific procedures in studying insects in both the field and the study, emphasising the proper preservation of specimens, accurate labelling, the use of biological

nomenclature, visiting certain habitat types for recording for conservation purposes, etc. Consequently, many evenings were spent poring over books and specimens. Days at local reserves and nights with his newly invented portable UV light (soon to be marketed and sold as the Heath Trap) rapidly filled field notebooks. One of his prototype traps made up in his garage at Grange-over-Sands still functions occasionally in Scotland and presumably is well on the way to becoming a potential museum piece in itself.

D. W. ("Bill") Kydd, a Glaxo colleague, became Ted's constant entomological field companion around Cumbrian sites. Initially they were targeted by John Heath at surveying the local low-lying north Lancashire mosses at Rusland, Angerton, Ellerside, Meathop, Holker, etc., and the famous Roudsea Wood National Nature Reserve. Their common interest was often pursued at lunchtimes on the old slag heaps adjacent to the factory. In earlier times, the site had been one of the local iron works, exploiting the haematite deposits in Furness which were becoming exhausted by the late 1930s. The rich, basic slag provided an interesting area to hunt for plants and insects. The heaps have been re-worked and graded recently and are not as productive.

The Heath and Hancock family friendship continued after John H. moved south to Monks Wood to run the Lepidoptera Mapping Scheme. The ambitious project of producing *MBGBI* evolved and the eventual outcome was that Ted was commissioned to convert the species descriptions in the text of the excellent Ray Society volumes on tortricoid moths into the standardised format used by *MBGBI*. There were also a few gaps in life histories and the maps needed to be created. Ted went about the task with vigour, networking with other moth enthusiasts throughout Britain to fill gaps and sort out some nomenclatural confusions. Genitalia preparations were essential for identifying worn specimens sent in from light traps up and down the country and pursuing names for these revealed a number of mistakes of transposition, transcription, etc., in the existing literature. A total in excess of 700 permanent microscope slides are part of the collection. The most basic Amstrad word processor was purchased and became the workhorse for generating not only the text itself but lists, reports and all other forms of communication via printed paper. A most productive correspondence was initiated with Josef Razowski. This Polish expert on the group was extremely generous with reprints and books and the best way to reciprocate was for small but crucial spare parts for Razowski's aged Volvo car to be mailed into the then still communist country.

It is a pity that the *MBGBI* tortricoid volume has not appeared in his own time, but in due course it will act as a part-memorial to his life. It still requires ancillary contributions, the plates to be drawn and genitalia figures for every species, which last task is being fulfilled by Josef Razowski. Ted's collection of Lepidoptera (of all families) has been donated to the Hunterian Museum (Zoology) at the University of Glasgow and, as a memorial, family and

friends have contributed towards the purchase of additional standard drawers for housing it there. Some lists and manuscript notes on local distribution have been deposited in the Tullie House Museum, Carlisle. The correspondence (which occupied a considerable bulk) has been accepted by the Natural History Museum, London, as an archive. In years to come it may perhaps be seen as representative on a small scale of the enormous effort by amateur lepidopterists of the late twentieth century in both providing seminal texts and the development and use of mapping for habitat and species conservation. Ted's wife Joyce died of cancer shortly after his first stroke, which left him housebound from 1991. Geoffrey and his family, Elizabeth, Barbara and Louisa now live near Glasgow, where Ted spent the last three years in a nursing home but most memories will be of holidays with nets in hands when the sun always seemed to be shining.

Bibliography of articles, etc., published by E.F. Hancock

- (1973) (with DW Kydd) *Lepidoptera – Rhopalocera (Furness Area)*, *Natural History in Cumbria, 1970-1972*. Association of Cumbria Natural History Societies.
- (1974) (with DW Kydd) *Lepidoptera of the Furness Area*, *Natural History in Cumbria, 1973*. Association of Cumbria Natural History Societies.
- (1976) (with DW Kydd) *Grange Lepidoptera Report 1975*, *Natural History in Cumbria, 1975*. Association of Cumbria Natural History Societies.
- (1976) *Macroglossum stellatarum* (L.) in Lancashire. *Entomologist's Rec. J. Var.* **88**: 71.
- (1976) (with JSS Charles) *Cochylidia implicitana* (Wocke) and *Aethes smeathmanniana* (Fab.) in Lancashire. *Entomologist's Rec. J. Var.* **88**: 10-102.
- (1980) (with DW Kydd) *Zygaena lonicerae* (Scheven) (Lepidoptera: Zygaenidae) in Cumbria. *Entomologist's Gaz.* **31**: 92.
- (1984) *Spargania luctuata* (D. & S.) in Norfolk. *Entomologist's Rec. J. Var.* **96**: 51.
- (1984) *Clavigesta purdeyi* (Durr.), *Hypsopygia costalis* (Fabr.) and *Agrotis puta* (Hbn.) in Cumbria. *Entomologist's Rec. J. Var.* **96**: 57.
- (1984) *Strophedra nitidana* Fabr. (Lep; Tortricidae) in Cumbria. *Entomologist's Rec. J. Var.* **96**: 185-186.
- (1986) *Acleris umbrana* (Huebner) (Lepidoptera: Tortricidae) : a mis-identification by Pierce & Metcalfe (1922). *Entomologist's Gaz.* **37**: 98.
- (1989) *Zygaena lonicerae* (Scheven) (Lepidoptera: Zygaenidae) in Cumbria. *Entomologist's Gaz.* **40**: 124.
- (1989) *Epiphyas postvittana* (Walk.) in Wales. *Entomologist's Rec. J. Var.* **101**: 277.
- (1990) Lepidoptera in vice-county 74 (Wigtown), June 1989. *Entomologist's Rec. J. Var.* **102**: 107-109.
- (1994) A new larval foodplant for *Falseuncaria ruficiliana* (Haw.) (Lep: Tortricidae) a correction. *Entomologist's Rec. J. Var.* **106**: 104.

E.G. Hancock



Hazards of butterfly collecting:**Airport Hotel, Lagos - Nigeria 1978/80**

The old Airport Hotel in Lagos is one of the worst institutions I have ever had to deal with. I was, of course, not met by their car as requested. I found some sort of taxi that seemed OK – in those days quite a few taxis specialised in taking you three kilometres towards town and then mugging you. I made several police and army officers ostentatiously note down the licence number and very soon we were at the Airport Hotel, for the fourth time in as many years: “Hi, my name is Larsen – you have a reservation for me!”. “Sorry, Sir, no rooms available”. “Sorry I have been advised by the Family Planning Association that I have a confirmed reservation”. “Is there any message for me?”. “No Sir”. I spotted an envelope with my name on it, grabbed it. It was a confirmed booking. So I checked in. “How long are you staying?”. I had no idea. We would be travelling inside Nigeria and be leaving in a month or so. Well, I better had to pay 30 days advance to maintain the booking, and that at the truly usurious rate of \$135 – a night, particularly galling since there was usually no food, no water, and no electricity (the acronym of the power corporation is NEPA, which locally stands for Never Ever Power Anymore). I put down \$3000.

Had my colleagues from London arrived, Mr. Aluvihare and Mr. Schaub? Definitely not. I grabbed the register, and sure enough, they were here; not unsurprisingly they were not in the rooms indicated in the register, but I managed to find them. So we had a full team, in the same place, at the right time. Pretty good going. The electricity then conked out and I went to sleep in an unmade bed, not wanting to stretch the logistical capacity of the hotel.

Vernon Aluvihare, my Sri Lankan boss who could occasionally be a bit pompous, knocked on my door in the morning: “Torben, I have bribed the roomboy to let me have a bathtub of water, and you can have half of it”. Milo Schaub came along. He had been CEO of a major pharmaceutical firm in Latin America; he was on the mission as a management auditor as a kind of hobby. He had found a gap in the fence of the swimming pool, so we all made for it (it was officially open only at lunch-time). Water could not be changed, but new chlorine was regularly dumped, so by the time the staff chased us out, we were so soaked in chlorine that I thought we might glow in the dark. Breakfast was not available, so we repaired to a local market for some biscuits.

We got down to the myriad tasks involved in a major programme review of a large organisation. We sometimes had electricity and food, but water never arrived. We bought a bucket and lifted from the pool, playing hide-and-seek with the pool staff and security guards.

Milo Schaub’s favourite project was banks. The prestigious UK bank through which our funds were transferred used three months to transfer our incoming telegraphic draft before transfer to the local account, thus managing to accrue three months interest to our detriment. Milo had lovingly

photocopied all documentation and set off to do battle with the managing director of the bank; it was so blatantly ridiculous. Over dinner that evening Milo was quite shattered. A typical British bank manager of those complacent days could not see there was any problem. All the banks were the same. But could they not gain a competitive advantage by doing better? Milo said it was like trying to murder a quilt.

We got through the mission, but it was a really long haul. The funny thing was that some very interesting entomological data were obtained. The untidy back garden of the hotel abutted a ravine with a bit of forest. One afternoon I discovered the caterpillars of the Forest Grizzled Skipper *Spialia ploetzi* on *Triumfetta* (Tiliaceae), a new host-plant record. Like most skippers, the larvae live in little shelters made by folding the leaves. While I was examining one of these shelters a large sphecoid wasp suddenly landed on the leaf, bit a slit, and extracted the larva. What was going on? Predation once removed, that's what. The leaf was folded in such a way that the almost white underside was very visible. The wasp was checking all white leaves that could be seen from above and would do so till there would be diminishing returns. Then it would stumble on another useful search pattern. But at the moment it had become a temporary specialised predator of the skipper larva (for details see this Journal, Larsen, 1981. 93:54-55).

I also managed to do detailed observation on the dragonfly *Orthetrum austeni* during a 24-hour flight delay on the unlamented Caledonian Airlines. It is now clear that this is a specialised predator of butterflies and day flying moths. Those observations were published (Larsen 1981, *Notulae Odonatologica* 1:130-133); the late Denis Owen had many similar observations from Sierra Leone.

We left Lagos five hours later than our 24-hour delay. We tried to land in Accra, but weather was still poor, and we finally ended up in Kano, being stuck for another five hours while the captain was trying to bribe some petrol out of the ground staff – he seemed to have 100,000 quid in travellers' cheques. The few passengers watched all the films and drank all the booze and eventually we reached London.

But it is nice that, even under the worst circumstances, butterflies will be available for useful study!– TORBEN B. LARSEN, Bangladesh, World Bank, 1818 H. Street N. W., Washington D.C., 20433, USA (Email: Torbenlarsen@compuserve.com).

Migration of Nymphalid butterflies in southern Laos, Indo-China (Lep.: Nymphalinae: Danainae)

On the afternoon of 1 of June 1999, I arrived at Savannakhet, Laos, a small frontier provincial town on the east bank of the Mekong river. Walking in mid-afternoon from the hotel along dusty streets towards the river, I became aware of the presence of a steady stream of large orange-coloured *Vindula*

butterflies, apparently all males, heading approximately south. As I neared the Mekong, individuals were more numerous and on the bank it was clear that a major migration was in progress. Between the river and the road was a bank, steep in places, covered in vegetation – mainly grass but with some flowers.

On the eastern side of the road were single and double storey buildings and gardens. Buildings impeded progress of individual butterflies, which flew up and over, or around them. On the road and riverbank, where there was nothing substantial to interrupt progress, butterflies flew fast and directly either singly, or in groups of two to four, about 0.5 to 2.5 metres above the ground. It was also clear that although individual butterflies were almost without exception large and fundamentally orange-brown, there were several species involved. The bulk of specimens were males of a *Vindula* species (probably *V. erota* Fabricius), but there were also several paler *Vindula* females and a *Cirrochroa* species (*C. tyche* Felder?). Also present were what I first took to be female *Argyrius hyperbius* Linnaeus, but there were no males and it was found on close inspection that these were *Danaus chrysippus* Linnaeus, many of which were also feeding at flowers on the river bank. It should be admitted that none were captured and that identification is based only on the author's imperfect knowledge of the region's butterflies.

Choosing the river bank, because there were no butterflies here flying against the general direction of movement or over the water, and because this afforded a good vantage point, total numbers of migrating butterflies passing a point during timed minutes were determined using a wristwatch stopwatch facility. Numbers of migrating individuals in 10 timed minutes in a half-hour period were 88, 111, 77, 131, 62, 128, 97, 208, 158 and 110 (average of 117 per minute). These data were collected between 1530 and 1630 hrs, with general observations made between 1515 hrs and 1730 hrs. Although this was only a section of the "stream", it was impractical to count butterflies over a wider area (other than, possibly, the road) due to differences in flight height above the river and the buildings. The section chosen was approximately 20m wide and represented probably 20% of the total width of the main migration, with density overall appearing more-or-less constant. Movement in the area where progress was interrupted by the buildings was difficult to assess, but appeared less dense. Movement was in a southerly direction. On the periphery of this broad band, butterflies flew in the same direction through the streets of the town, but individuals were few and it was not so obvious that they were part of a migration.

There were several other butterfly species feeding at flowers on the bank, but apparently not involved in the migration. These included *Eurema hecabe* Linnaeus, and *Acraea issoria* Hübner. I left Savannakhet for Vientianne early the following morning and have no idea for how long movement continued, not for how long it had been in progress prior to my arrival in Savannakhet. – W. JOHN TENNENT, 38 Colin McLean Road, Dereham, Norfolk NR19 2RY (E-mail: jt@storment.freemove.co.uk).

British Moth websites

Having set up a website for Hampshire Butterfly Conservation, I did research on the current websites, including those for moths and the following is a subjective (and probably incomplete) survey of the current websites for moths in Britain. A point to bear in mind is that these websites will probably have been set up and maintained by enthusiasts, in their "spare" time. With that proviso in mind it is pleasing to see the developing quality of some of these sites, as the web designers become more aware of the possibilities for their site.

My own feeling is that a site should be easy to load, with not a lot of time wasted in loading irrelevant backgrounds and graphics. It is so easy to never visit that site again, if that is your experience, in spite of the content of the site. It should also provide you with the information you need and be easily navigable. Many of the sites mentioned in this article meet these criteria. It is also interesting to note the increasing use of digital cameras to provide high quality images of the moths, macros and micros – providing pictures for their own inherent quality, or to aid identification. A web site that I use frequently is the UK Moths site at **www.ukmoths.force9.co.uk**. It has thumbnail, high-quality photos of nearly 800 moths, which can be easily enlarged, including micros, and is a delight to use. The search facility is also very accessible.

Another website which has a good visual appeal is the Butterflies and Moths of Milton Keynes at **www.mklep.co.uk**. This site has photographs of moths and regular updates. This site in common with others incorporates both moth and butterfly recording.

Several moth groups have their own web sites. The Herts Moth Group at **www.hertsmothgroup.org.uk** is maintained by our own editor and is easily navigable containing news, field trips and reports.

The Leicestershire and Rutland Moth group have a web site at **www.pintail-close.freemove.co.uk/vc55mothgroup**, which contains frequent updates and very good photographs.

In East Anglia are to be found a further three sites. The Norfolk Moth Group has a site at **website.lineone.net/~david.hipperson/index.html**, which usefully contains an on-line copy of the Norfolk Moth Survey, with details of field meetings. In Suffolk, Suffolk Moths at **www.btinternet.com/~Tony.Prichard** is full of useful information, well presented, with topical items. The Essex Moth Group have a site at **www.aave45.dial.pipex.com/index.html** which consists mainly of news and a newsletter.

Further north the Wildlife in South Cumbria web site has a moths section at **www.wildlife.co.uk/message.html** with articles, features on local moths and details of sightings.

A feature of the Cheshire's Moths site is it's on line reports. Find this at **www.consult-eco.ndirect.co.uk/entomol/chmmoths/index.htm**.

The Lancashire Moths site at www.lancashiremoths.f2s.com provides a discussion forum and detailed records, for example through its migrant review.

If your interest is in migrants then the Immigration of Lepidoptera in the UK site at www.geocities.com/Yosemite/Meadows/3780/index.html is regularly updated and contains information on both moths and butterflies.

Finally there are two discussion fora; UK-Leps at groups.yahoo.com/group/uk-leps and UK-Moths at groups.yahoo.com/group/ukmoths. Both provide a forum for sightings, discussion and identification issues, with contributors nationally (and some internationally).

If this article has stimulated you to try some of these sites, then log on to one site and look in its Links section – it will save you the effort of writing in long and sometimes obscure URLs! – ROB EDMUNDS, 32 Woodcote Green, Calthorpe Park, Fleet, Hampshire GU13 8EY (E-mail: r.edmunds@ntlworld.com).

More Insect Web Sites

Rob's note, above, has prompted me to add a few extra sites that I have come across in the last year.

This journal's website may be found at members.netscapeonline.co.uk/colinwplant/entrechome.html.

For identification pictures of Tortricidae, try looking also at kimmo.webjump.com/micro/index.htm. This is a Finnish site, so although not everything in the Ray Society books is listed, though it does have photos of over 350 specimens, many of which are found in Britain (click on the thumbnails).

A couple of local groups that Rob missed are Staffordshire, at www.staffs-inverts.org.uk, the West Midlands Moth Group (Incorporating the Worcestershire and Herefordshire Groups) at www.droitwich.btinternet.co.uk/moth and Shetland Wildlife, at www.wildlife.shetland.co.uk.

An invaluable site for looking up grid references is the Ordnance Survey's web site at www.os.gov.uk. From the home page go to the "What map?" page enter a place name and the grid reference is given to you. If you are writing notes on your findings and want to know about last year's weather, go to www.met.rdg.ac.uk/~brugge/diary1999.html#0899.

The Federation for Natural Sciences Collections Research (Fenscore) is an *ad hoc* body set up in 1980 to co-ordinate the activities of regional groups of curators in the UK who then were beginning to survey natural science collections (Botany, Geology, Zoology) in their areas. After nearly two decades a great deal of information has been gathered and published, and a Website has been set up to provide a searchable national database of collection information, and to provide current and archive information about collections research in the British Isles. Their site fenscore.man.ac.uk is probably the best available site to search for the location of a named insect collection.

Some alternative designs for moth traps may be found at www.itb.u-net.com/leps/moth.htm, whilst the two main entomological suppliers can be contacted at www.angleps.btinternet.co.uk/main.htm (Anglian Lepidopterists' Supplies) and www.watdon.com (Watkins & Doncaster).

For societies, you can find the Amateur Entomologists' Society at www.theaes.org, and their junior branch, The Bug Club, is to be found at www.exeter.ac.uk/bugclub. The British Entomological & Natural History Society is at www.benhs.org.uk and Butterfly Conservation is at www.butterfly-conservation.org, providing comprehensive links to statutory & non-statutory governmental bodies, NGOs and other groups. The Wildlife Trusts are located at www.wildlifetrust.org.uk, where you will find a list of the phone numbers and e-mails of the individual county Trusts at page www.wildlifetrust.org.uk/local.htm – an invaluable resource for anyone seeking permission to record insects on Trust nature reserves.

At the international level, find the SEL (Societas Europaea Lepidopterologica) at www.zmuc.dk/entoweb/sel/sel.html. The SEL was founded in 1976 with the aims of promoting collaboration among the lepidopterists of Europe, Western Asia and North Africa, and of promoting conservation of Lepidoptera and their habitats. The Society now has in excess of 700 members and is well worth the support of British Lepidopterists. – COLIN W. PLANT, 14 West Road, Bishops Stortford, Hertfordshire CM23 3QP (E-mail: colinwplant@netscapeonline.co.uk).

Unseasonable Stag Beetles

Mr K. C. Lewis recently found two male stag beetles (*Lucanus cervus* (L.)) on his garden path at Welling, north-west Kent, where the insect is frequent. The remarkable feature of these finds is the time of year: the first was picked up dead on 22.iv.2001; the body-cavity was found to be hollow. The second, alive, occurred within three feet of the first; all but one of its legs were incomplete.

The question at once arises: what were they doing out in the open so early in the year? The normal time of appearance in this district is late June and July. May records are doubtless not unknown, at all events in forward years which this most certainly is not, at least as regards temperature which might hasten development. Spring rainfall here has reached record levels, but it is hard to see how that might affect the issue.

I feel sure that these beetles were not lately emerged, but survivors from last year's brood. Whilst it is highly unusual to meet with specimens much after August, single beetles have occasionally been dug up alive in autumn or even winter – as is also the case with another beetle of comparable bulk, namely *Prionus coriarius* (L.). The condition of the above two *L. cervus* strongly suggests that they had hibernated, and perhaps been dug up by a cat or fox.

During the period 1998-2001, Mr Lewis has noted 25 specimens (seven of them females) from two lime stumps in the vicinity, the trees having been snapped off in the great storm of October 1987. – A. A. ALLEN, 49 Montcalm Road, Charlton, London SE7 8QG.

Seventh update of early emergences of moths at Selborne, Hampshire

These tables continue the comparisons (*Ent. Rec.* **113**: 87-91) between my earliest observations of non-hibernatory species in 1992-94 and those in 1995-97. The m.v. light was run here on just over 320 nights during each year of the survey. Of these next 87 species, 48 arrived earlier in 1995-97 than in 1992-1994. Six species had the same earliest date in both periods. Fourteen species were seen in a month earlier than is usually expected.

These updates have so far related to the months January to July inclusive. They have covered 381 species, of which 246 (64.6%) arrived earlier in the second period, 1994-97. Twenty other species (5.2%) had the same earliest date in both periods, whilst 115 species (30.2%) arrived later in the second period.

Taking account of observations on both periods, 119 species (31.2%) were seen in a month earlier than is usually unexpected.

Species	1995-1997	1992-1994	MBGBI imago
1169 <i>Gypsonoma dealbana</i> (Frol)	1 Jul 95	20 Jul 94	Jul, Aug
1666 <i>Geometra papilionaria</i> (Linn.)	1 Jul 97	12 Jul 94	Jun-Aug
1732 <i>Scotopteryx chenopodiata</i> (Linn.)	1 Jul 95	26 Jul 93	Jul, Aug
2064 <i>Phragmatobia fuliginosa</i> <i>fuliginosa</i> (Linn.) – 2nd brood	1 Jul 97	12 Jul 94	Aug, Sep
2112 <i>Diarsia brunnea</i> (D.&S.)	1 Jul 97	1 Jul 94	Jun-Aug
1415 <i>Orthopygia glaucinalis</i> (Linn.)	2 Jul 95	7 Jul 92	Jul, Aug
1839 <i>Eupithecia succenturiata</i> (Linn.)	2 Jul 95	22 Jul 94	Jul, Aug
2044 <i>Eilema griseola</i> (Hb.)	2 Jul 97	9 Aug 94	Jul, Aug
2057 <i>Arctia caja</i> (Linn.)	2 Jul 95	2 Jul 94	Jul, Aug
2225 <i>Brachylomia viminalis</i> (Fabr.)	2 Jul 97	30 Jun 93	Jul, Aug
2473 <i>Laspeyria flexula</i> (D.&S.)	2 Jul 95	3 Jul 92	Jun-Aug
1789 <i>Rheumaptera undulata</i> (Linn.)	3 Jul 97	29 Jun 92	Jun, Jul
1921 <i>Crocallis elinguaris</i> (Linn.)	3 Jul 97	11 Jul 94	Jul, Aug
1001 <i>Lozotaeniodes formosanus</i> (Geyer)	4 Jul 97	12 Jul 94	Jun-Aug
1094 <i>Apotomis capreana</i> (Hb.)	4 Jul 95	24 Jul 94	Jun-Aug
2047 <i>Eilema complana</i> (Linn.)	4 Jul 95	18 Jul 92	Jul, Aug
2130 <i>Xestia baja</i> (D.&S.)	4 Jul 97	24 Jul 93	Jul, Aug
2318 <i>Cosmia trapezina</i> (Linn.)	4 Jul 97	8 Jul 94	Jul-Sep

Species	1995-1997	1992-1994	MBGBI imago
161 <i>Zeuzera pyrina</i> (Linn.)	5 Jul 97	2 Jul 94	Jun-Aug
1504 <i>Platyptilia pallidactyla</i> (Haw.)	5 Jul 95	27 Jun 92	Jun-Aug
1767 <i>Thera firmata</i> (Hb.)	5 Jul 95	9 Jun 93	Jul-Nov
2437 <i>Polychrisia moneta</i> (Fabr.)	5 Jul 96	3 Jul 94	Jun-Aug
1037 <i>Acleris holmiana</i> (Linn.)	6 Jul 95,7	8 Jul 93	Jul, Aug
1170 <i>Gypsonoma oppressana</i> (Treit.)	6 Jul 95	12 Jul 94	Jun, Jul
1294 <i>Crambus pascuella</i> (Linn.)	6 Jul 97	22 Jul 94	Jun-Aug
1358 <i>Evergestis pallidata</i> (Hufn.)	6 Jul 95	17 Jul 94	Jun-Aug
1378 <i>Phlyctaenia coronata</i> (Hufn.)	6 Jul 97	18 Jul 94	Jun-Aug
1417 <i>Pyralis farinalis</i> (Linn.)	6 Jul 95	19 Jun 93	Jul-Sep
1640 <i>Euthrix potatoria</i> (Linn.)	6 Jul 95	12 Jul 94	Jul, Aug
2118 <i>Lycophotia porphyrea</i> (D.&S.)	6 Jul 97	8 Jul 94	Jun-Aug
1159 <i>Rhopobota naevana</i> (Hb.)	7 Jul 97	23 Jul 94	Jun-Sep
1305 <i>Agriphila tristella</i> (D.&S.)	7 Jul 97	7 Jul 92	Jul-Sep
1313 <i>Catoptria pinella</i> (Linn.)	7 Jul 97	21 Jul 93	Jul, Aug
1438 <i>Trachycera suavella</i> (Zinck.)	7 Jul 97	12 Jul 94	Jul, Aug
873 <i>Blastobasis lignea</i> (Wals.)	8 Jul 97	20 Jul 93	Aug
938 <i>Agapeta zoegana</i> (Linn.)	8 Jul 97	29 Jun 92	May-Aug
1108 <i>Lobesia abscisana</i> (Doubl.)	8 Jul 97	15 Jul 93	Jul, Aug
1200 <i>Eucosma hohenwartiana</i> (D.&S.)	8 Jul 96	9 Jun 93	Jun-Aug
1316 <i>Catoptria falsella</i> (D.&S.)	8 Jul 95, 7	4 Jul 93	Jul, Aug
1777 <i>Hydriomena furcata</i> (Thunb.)	8 Jul 95	25 Jun 93	Jul-Aug
2293 <i>Cryphia domestica</i> (Hufn.)	8 Jul 97	30 Jun 94	Jul, Aug
196 <i>Morophaga choragella</i> (D.&S.)	9 Jul 95	5 Jun 93	Jul, Aug
1183 <i>Epiblema foenella</i> (Linn.)	9 Jul 95	4 Jul 93	Jul, Aug
1426 <i>Achroia grisella</i> (Fabr.)	9 Jul 96	21 Jul 94	Jun-Oct
1454 <i>Dioryctria abietella</i> (D.&S.)	9 Jul 97	3 Jul 94	Jul, Aug
1655 <i>Tethea or or</i> (D.&S.)	9 Jul 96	24 May 93	May-Aug
2475 <i>Parascotia fuliginaria</i> (Linn.)	9 Jul 97	7 Jul 93	Jun-Aug

Species	1995-1997	1992-1994	MBGBI imago
2196 <i>Mythimna pudorina</i> (D.&S.)	11 Jul 97	17 Jul 94	Jun, Jul
450 <i>Scythropia crataegella</i> (Linn.)	12 Jul 97	17 Jun 93	Jul
1436 <i>Conobathra repandana</i> (Fabr.)	12 Jul 95	25 Jul 94	Jul, Aug
2303 <i>Thalpophila matura</i> (Hufn.)	12 Jul 95	7 Aug 94	Jul, Aug
453 <i>Ypsolopha dentella</i> (Fabr.)	13 Jul 95	2 Jul 94	Jul-Sep
1792 <i>Philereme transversata</i> <i>britannica</i> (Lempke)	13 Jul 97	12 Jul 94	Jul
868 <i>Helcystogramma rufescens</i> (Haw.)	14 Jul 95	23 Jul 94	Jun-Aug
1038 <i>Acleris laterana</i> (Fabr.)	14 Jul 97	11 Aug 94	Aug-Oct
1634 <i>Malacosoma neustria</i> (Linn.)	14 Jul 96	7 Jul 93	Jul, Aug
2033 <i>Lymantria monacha</i> (Linn.)	14 Jul 95	15 Jul 93	Jul, Aug
2037 <i>Mitochondria miniata</i> (Forst.)	14 Jul 97	16 Jul 94	Jun-Aug
1233 <i>Pammene aurita</i> (Raz.)	15 Jul 97	27 Jul 94	Jul, Aug
1912 <i>Ennomos quercinaria</i> (Hufn.)	15 Jul 95	19 Jul 93	Aug, Sep
2341 <i>Mesoligia furuncula</i> (D.&S.)	15 Jul 97	15 Jul 93	Jul, Aug
1323 <i>Pediasia contaminella</i> (Hb.)	16 Jul 95	27 Jul 94	Jul, Aug
2335 <i>Apamea scolopacina</i> (Esp.)	16 Jul 97	16 Jul 93	Jun-Aug
1794 <i>Euphyia unangulata</i> (Haw.)	17 Jul 95	17 Jul 94	Jun-Aug
1421 <i>Aglossa pinguinalis</i> (Linn.)	18 Jul 95	1 Jul 94	Jun-Aug
2361 <i>Hydraecia micacea</i> (Esp.)	19 Jul 97	7 Aug 94	Aug-Oct
1439 <i>Trachycera advenella</i> (Zinck.)	20 Jul 95	14 Jul 93	Jul, Aug
2111 <i>Noctua janthe</i> (Borkh.)	20 Jul 97	19 Jul 93	Jul-Sep
969 <i>Pandemis corylana</i> (Fabr.)	22 Jul 96	15 Jul 93	Jul-Sep
1388 <i>Udea lutealis</i> (Hb.)	22 Jul 95	28 Jul 93	Jul-Sep
1126 <i>Ancylis badiana</i> (D.&S.)	23 Jul 97	27 Jul 93	May-Aug
1134 <i>Epinotia ramella</i> (Linn.)	23 Jul 97	22 Aug 93	Jul-Sep
1260 <i>Cydia splendana</i> (Hb.)	23 Jul 96	24 May 93	Jul-Sep
1884 <i>Abraxas grossulariata</i> (Linn.)	23 Jul 97	16 Jul 94	Jul, Aug
2112 <i>Noctua interjecta</i> <i>caliginosa</i> (Schaw.)	24 Jul 95, 7	26 Jul 94	Jul, Aug
430 <i>Yponomeuta plumbella</i> (D.&S.)	25 Jul 95	30 Jul 92	Jul, Aug

Species	1995-1997	1992-1994	MBGBI imago
1303 <i>Agriphila selasella</i> (Hb.)	25 Jul 95	8 Aug 94	Jul, Aug
455 <i>Ypsolopha scabrella</i> (Linn.)	26 Jul 95	10 Aug 94	Jul-Sep
1307 <i>Agriphila latistria</i> (Haw.)	27 Jul 95	12 Aug 94	Jul-Sep

– ALASDAIR ASTON, Wake's Cottage, Selborne, Hampshire GU34 3JH.

EDITORIAL NOTE: Alasdair Aston's regular summaries of species emerging earlier than expected provide a valuable ongoing record. For the benefit of new subscribers, earlier summaries may be read in this journal at **106:** 116; **107:** 4; **107:** 191; **110:** 54; **110:** 189; **111:** 134; **111:** 220; **111:** 286; **112:** 183-185, *antea* 29-30 and *antea* 87-91.

Not quite observations of snow fleas *Boreus hyemalis* (L.) (Mecoptera: Boreidae) feeding

Two male snow fleas *Boreus hyemalis* were found on the sunny afternoon of 20 January 2001 on a snow patch, about 8 metres x 30 metres, at 600 metres altitude on the south-facing slope of Bera Bach, Snowdonia (VC 49, grid reference SH 667674). Mindful of the lack of information on which moss species *Boreus* utilise (Plant, 1994. *Provisional atlas of the lacewings and allied insects (Neuroptera, Megaloptera, Raphidioptera and Mecoptera) of Britain and Ireland*. Biological Records Centre, Huntingdon), samples of mosses from the turf around the edge of the snow patch were collected, and kindly identified by Dr David Stevens of CCW as *Dicranum scoparium*, *Hylocomium splendens*, *Rhytidiadelphus squarrosus* and *Polytrichum alpinum* var. *alpinum*.

On the evening of the day of capture, both *Boreus* were placed in a Petri dish with all the moss samples. During two hours of observation there was no sign of feeding on moss. Since the related genus *Panorpa* feeds on insects, several springtails were also placed in the Petri dish as potential food. These were ignored by the *Boreus* even when the springtails were under their feet. I subsequently learned that Withycombe (1921. On the life-history of *Boreus hyemalis* L. *Trans. ent. Soc.Lond.*, 1921: 312-318) found *Boreus* would feed on the soft contents of crushed flies, but not on live or whole insects.

One *Boreus* was then starved for two days in a tube with damp tissue paper but no moss. When it and a piece of *Rhytidiadelphus* were then placed in a pot, the *Boreus* climbed on to the moss and poked its mouthparts into a whorl of leaves. The mandibles were not visible, but the base of the mouthparts was in motion for about 10 minutes, suggesting the mandibles were working. Afterwards the leaf was peeled back and examined but no feeding damage could be seen under a x40 microscope.

The other mosses were presented to the *Boreus* in turn for 10-15 minutes. *Dicranum* was "felt" with the tips of the palps, but no feeding was attempted. *Hylocomium* leaf bases were probed briefly several times but no sustained use of

the mouthparts took place. *Boreus* walked over the *Polytrichum* several times but did not pause to probe it. A dead springtail was also walked over but ignored.

When *Rhytidiadelphus* was again placed in the pot, after five minutes of inactivity the *Boreus* again appeared to attempt to feed for four minutes with the mouthparts pushed down to a leaf base and the palps flattened back against the sides of the head so that the tips lay near the eyes. Later the *Boreus* was presented with a second sprig of *Rhytidiadelphus*, with a drop of pond water on it. After 10 minutes stationary, *Boreus* walked to the moss and probed the leaves again in the region where the water clung to the moss. This time there was no sign of the mouthparts working.

Similar observations were made on subsequent days. When presented with dampened *Rhytidiadelphus* after a day of starvation, both *Boreus* would probe the tight whorls of leaves, particularly if the leaves held water. However, the behaviour cannot be explained as simply drinking. The mouthparts were not merely inserted into the water but were forced down to the leaf bases, with the mandibles working on one occasion for 30 minutes. Sometimes the front legs were hooked over adjacent leaves to gain leverage. On occasions, the mouthparts were taken out of leaves holding water and other dry leaves were probed, suggesting water was not the object. No damage to leaves could be seen, no leaf fragments could be seen passing up the translucent rostrum, and leaf edges, which would have been easy to bite, were ignored. Occasionally the mandibles could be seen through the leaf and appeared to be scraping or skimming the leaf surface.

No recognisable droppings appeared in the pot even though the *Boreus* were kept in it for four and six days respectively.

Others have made similar observations. Withycombe (*op. cit.*) records "several imagines bruising the bases of green moss leaves with their mandibles and quite plainly feeding thereon for a minute or two at a time". Fraser (1943. Ecological and biological notes on *Boreus hyemalis* (L.) (Mecopt., Boreidae). *J. Soc. Br. ent.* 2: 125-129) describes how *Boreus* "walks about thrusting its rostrum into the interstices of the moss (*Polytrichum commune*) or bracts and bases of the leaves" but he then describes how young shoots of *Polytrichum* are nibbled from the apex downwards "until nothing is left but a conical shell of foliage", this being repeated until "quite a small area had been browsed over".

My observations are perhaps explained if the *Boreus* were attempting to feed but not finding what they were seeking. The elongate *Boreus* head seemed to be well accommodated by *Rhytidiadelphus* leaves: the mouthparts just reached the leaf base without the eyes being obscured. Perhaps there is another moss of similar dimensions which has some particularly nutritious structure at the leaf base. *Rhytidiadelphus squarrosus* is vegetative in Britain so *Boreus* seeking sporophytes in this species would be unsuccessful.

A more plausible explanation has been proposed by Ivo Raemakers of Wageningen University, who has studied *Boreus hyemalis* in the Netherlands

(Raemakers & Kleukers, 1999. De sneeuwspringer *Boreus hyemalis* in Nederland (Mecoptera: Boreidae). *Nederlandse Faunistische Mededelingen* 8: 1-10). If *Boreus* obtains its food by extra-intestinal digestion, as suggested by Struebing (1958. Schneeinsekten. *Neue Brehm-Bucherei* 220: 1-47), the lengthy periods with the mandibles working to no apparent effect could represent the excretion of digestive fluids and subsequent absorption of dissolved leaf cell contents. Such damage would not be visible at x40. But for the Foot and Mouth Disease outbreak, which resulted in walking in Snowdonia to be banned, I would have attempted to obtain more *Boreus* and investigate the matter further.

Lastly, information on the species of moss utilised by *Boreus* is not quite so sparse as Plant (*op. cit.*) suggests. Withycombe (1921) mentions larvae being found in *Mnium hornum*, *Dicranella heteromalla* and *Bryum atropurpureum* (= *bicolor*), the first being the preferred moss in Epping Forest, Essex. Struebing (1958) mentions *Mnium* spp. and *Polytrichum piliferum* being utilised in Germany.

I am very grateful to Dr Raemakers for suggesting the explanation for my observations and making this note worth publishing, and for supplying copies of the papers quoted. — JOHN BRATTON, 18 New Street, Menai Bridge, Anglesey LL59 5HN. (E-mail: J.Bratton@ccw.gov.uk).

***Megapenthes lugens* Redt. (Co.: Elateridae) bred from elm: a belated Windsor record, and further notes**

Windsor Forest appears to be the only place in Britain where this scarce click-beetle has occurred on several occasions during the past century. My first find there was in the Great Park: two ♀♀ in elm 5.iii.1938 (Allen, 1966, *Ent. Rec.* 78: 19). All others known to me were in the Highstanding Hill area of the Forest, where a few collectors have met with an example or two, and one, P. Cook, several (hawthorn blossom, 1971). It was there, only a short way in from the road, in a piece of decaying elm log, that I found a larva (31.x.1971) which, though quite young, was readily identified later as that of *M. lugens* by the details of the caudal extremity. It fed up and produced a male adult on 19.vii.72. I am unaware of previous British breeding records.

The above serves to confirm elm as a (the?) primary host-tree of this beetle, in Britain at all events; it may be expected to become rarer than ever as a result of the ravages of Dutch elm disease. Of other trees that may be used, beech is much the likeliest – occasional adults having been found on (not in) beech in Windsor Forest. I know of no evidence for oak as a host-tree in Britain. I gather that elm was the source of the colony formerly existing at Highgate, north London, where the Jansons took specimens during more than one season, some (I believe) from hawthorn blossom – a favourite resort of the beetle. I have a pair from there dated 27.ii.1866 (♂) and 1865 (♀). Fowler (1890, *Col. Brit. Isl.*, 4: 94) has a record “Stockwell, Surrey (Montague)”; this is in South London, and I once read that the source was an old or dead elm in a corner of Montague’s garden.— A. A. ALLEN, 49 Montcalm Road, Charlton, London SE7 8QG.

***Bledius talpa* Gyll. (Col.: Staphylinidae): a postscript**

Further to my recent note on this insect (2000, *Ent. Rec.* **112**: 270): Mr C. MacKechnie-Jarvis has written to point out that the source of the two old specimens in the National Collection must after all be the well-known Dr J. A. Power. The name W. A. Power on the label (teste K. C. Lewis) should be altered accordingly. This clears up the question of their proximate (but not of course their ultimate) origin. It is strange therefore that Canon Fowler – who evidently worked through Power's collection in preparing his *magnum opus* – makes there no mention of *B. talpa*, from which it appears that he never saw them; perhaps they were already, like certain other beetles not (or not then) accepted as British, separated from the main collection. His treatment of similar cases suggests that, had he known of this old pair, he would not have omitted all mention of the species.— A. A. ALLEN, 49 Montcalm Road, Charlton, London SE7 8QG.

***Phragmatobia fuliginosa* L. (Lep.: Arctiidae): first generation at light and third generation examples in Kent**

Two specimens of *P. fuliginosa* attended my garden m.v. light at Dartford on 12.v.1999. Over the thirty-two years from 1969 to 2000, this light has attracted over 170 *fuliginosa* second generation specimens in July and August, but only two of the first generation which are occasionally observed flying in the sunshine locally in April, May and June. Second generation specimens I have not seen flying by day here.

This curious behaviour was, I believe, first brought to notice by Chalmers-Hunt (*Ent. Rec.* (suppl.) **75**: 105), and is now known to prevail in Kent, Surrey and Hampshire, but is contrary to the régime stated in the standard textbooks and for the London Area in Plant (1993, *Larger Moths of the London Area*). These, referring to southern Britain, emphasise the importance of the first generation and suggest that the second generation is both partial and occasional. However, it is difficult to assess the strength of the first brood here as it is very rarely seen at light and its diurnal flight difficult to see, being distinctly cryptic, especially on heathland. The second generation in Kent appears much the stronger in numbers, and is evident every year. Outside the counties quoted, my only experience with *fuliginosa* is in Devon, at Bolberry Down, when six specimens came to m.v. light on 24.viii.1984.

My garden m.v. light has attracted two September specimens, one two months and the other almost six weeks after the run of July/August specimens, and perhaps these were representatives of a partial third generation: 20.ix.1976 (the long, hot summer) and 18.ix.1997.— B. K. WEST, 36 Briar Road, Dartford, Kent DA5 2HN.

BOOK REVIEW

Photographic Guide to the Butterflies of Britain & Europe by Tom Tolman. Oxford University Press, 2001. Numerous colour plates and colour distribution maps in text. 215 x 138mm, 305pp., Hardback, ISBN 0 19 850607 4. £35. Paperback, ISBN 0 19 850606 6. £16.50

Unlike the UK publishing market for books on moths, the butterfly book market is buoyant with several popular titles released every year. Many of them are of only passing interest and rapidly appear as remainders. A few aspire to greater things and aim to cover comprehensively the identification of the European butterfly fauna. For many years the doyen of this group was Higgins and Riley 1970 *A Field Guide to the Butterflies of Britain and Europe*. Collins – a book that achieved the accolade of being known by its authors' names alone. Higgins and Riley was updated by Tom Tolman's *Butterflies of Britain and Europe* (Collins, 1997). Maps accompany the detailed descriptive notes and there is the major advantage of Richard Lewington's superb paintings of both upperwings and closed wing resting positions. However these paintings are bound in one continuous sequence in the centre of the book, making field use somewhat difficult.

In recent years the photographic guide has become popular, with the increasing number of quality colour photographs and improved printing technology meaning that it can be cheaper to produce a photographic guide than to commission an artist to produce meticulously detailed paintings. The first of these was Chinery's *Butterflies of Britain and Europe* (Collins, 1998). This book, too, split photographs from text, used miniscule maps and was so narrow and tightly bound as to make its claim of "the only photographic field guide you can use in the wild" true only because it was the only one of its kind. However its photographs were close up and generally well reproduced.

Into the market now comes Tom Tolman's photographic guide. Its design places maps, photographs and description together, an advantage over Chinery's book. Moreover the maps are in colour and can show resident and migratory ranges. These maps are also generously sized but show no political boundaries. Tolman's earlier book had much smaller maps but with boundaries shown. The new work has a large political map at the beginning, but then nothing else to indicate where any point on a map actually is. Clearly butterflies know no political boundaries, but for humans the context is valuable. For many species male and female and upper and underwing photographs are used but, for some reason, not always. For instance, the Large Tortoiseshell is illustrated by two underside and one underside illustration whereas the Small Tortoiseshell is represented by one upperwing photograph. The inexperienced observer seeing the latter sitting wings closed might well decide they had seen the former. The total lack of any measurements, a deliberate decision according to the introduction and also a feature of Tolman's earlier book make this possibility more likely. I accept that all species are variable and exceptions can always be found to the published size ranges but not to show some relative size data for large but initially similar groups such as the satyrids and fritillaries makes identification difficult especially in an area where your normal reference species may not be found. Some species with a more limited distribution are not illustrated when surely they are the very ones that one does need to have illustrations for. It is also disappointing that the choice of photograph and their reproduction, in a few cases, lets this book down. For instance Berger's Clouded Yellow on page 32 of the review copy is an interesting shade of blue; why is the Corsican Swallowtail on page 2 monochrome; surely there are better photographs than that of the Small Tortoiseshell on page 145.

Having said this, it is still the title I would take into the field for its combination of portability and ease of use. Just one question though. Why are all the guides to the butterflies of Europe published in Britain called guides to the butterflies of *Britain and Europe*? Even without dragging this journal into a contentious political arena this seems somewhat tautologous. Indeed to use such guides as British identification aids could be a very long way around to gain knowledge of the British butterfly fauna. Andrew Wood

**CRASPEDOLEPTA NEBULOSA (ZETTERSTEDT)
(HEMIPT.: PSYLLIDAE), A PSYLLID NEW TO IRELAND**

J. P. O'CONNOR

National Museum of Ireland, Kildare Street, Dublin 2, Ireland.

WHILE COLLECTING insects in the woods at Virginia (Irish grid reference N 5987) on 15 July 1999, the author noted galls on the leaves of rosebay willow-herb *Chamerion angustifolium*. There were two different galls, both with the leaf margins rolled downwards. One was scarce and the other abundant. The former was tightly rolled and contained the larvae of *Dasineura kiefferiana* (Rübsaamen) (Diptera), a species new to Ireland (O'Connor, 2000). The latter was loosely rolled and contained psyllid nymphs. From White & Hodkinson (1982), it was evident that they belonged to either *Craspedolepta nebulosa* (Zetterstedt) or *Neocraspedolepta subpunctata* (Foerster). Neither species had been previously recorded from Ireland. Unfortunately, the specimens were too immature to be identified to species.

In August 1999, the author revisited the woods to collect further material. None were found although the galls were plentiful. Subsequently, on 14 August 2000, similar galls were discovered on *C. angustifolium* alongside a woodland track near Fiddown, Co. Waterford (S 4618). These were also empty except for the skin of a large psyllid nymph. It was unidentifiable due to damage.

On 16 May 2001, a return visit was made to Virginia. No galls were found on the rosebay willow-herb despite an intensive search. However a large number of plant heads were collected for further examination. These yielded twenty-six psyllids which were determined as *C. nebulosa* using Ossiannilsson (1992). The specimens occurred in the growing heads. The density was normally one or two specimens per plant, but four individuals were found in one head. However it is uncertain if this species caused the Virginia galls. *C. nebulosa* is reported as producing galls with the leaf upturned while those of *N. subpunctata* have the leaf down-turned (Lauterer & Baudys, 1968; Redfern et al., unpublished). As a result, *N. subpunctata* may be yet found in the Virginia woods. In Moravia, both species occurred on the same host plant (*C. angustifolium*) with *C. nebulosa* being the rarer species. Interestingly, the larvae of the two species do not produce leaf galls regularly (Lauterer & Baudys, *op. cit.*).

C. nebulosa is common throughout southern Britain, becoming scarcer in Scotland. The species also occurs in central and northern Europe, the European part of the former U.S.S.R., Kazakhstan, Georgia, Kamchatka, Maritime Territory, Sakhalin, Siberia and North America (Hodkinson & White, 1979; Ossiannilsson, *op. cit.*). Voucher specimens have been deposited in the National Museum of Ireland.

References

- Hodkinson, I. D. & White, I. M., 1979. Homoptera: Psylloidea. *Handbk. Ident. Br. Insects* 2(5a): 1-98.
- Lauterer, P. & Baudys, E., 1968. Description of a new gall on *Chamaenerion angustifolium* (L.) Scop. produced by the larva of *Craspedolepta subpunctata* (Först.), with notes on the bionomics of this psyllid. *Cas. morav. Mus. Brne.* 53: 243 - 248.
- O'Connor, J. P., 2000. Seven gall-causing species (Diptera & Eriophyoidea) new to Ireland with notes on other species. *Cecidology* 15: 92-97.
- Ossiannilsson, F., 1992. The Psylloidea (Homoptera) of Fennoscandia and Denmark. *Fauna Entomologica Scandinavica* 26: 1-347. E. J. Brill, Leiden.
- Redfern, M., Shirley, P. & Bloxham, M., unpub. *Keys to galls. Identification of galls on plants and fungi in Britain.* AIDGAP test version. The Field Studies Council, Preston Montford.
- White, I. M. & Hodkinson, I. D. 1982. Psylloidea (nymphal stages). Hemiptera, Homoptera. *Handbk Ident. Br. Insects* 2(5b): 1-50.

Lipara rufitarsis Loew (Dip.: Chloropidae) in Kent, with belated records of two other species of Chloropidae

There are three known British species of *Lipara*, namely *L. lucens* Meigen, *L. rufitarsis* Loew and *L. similis* Schiner and all form stem-galls on common reed *Phragmites australis* (Chvála, M., Doskoč, J., Mook, J. H. & Pokorný, V. 1974. The genus *Lipara* (Dipt., Chloropidae) systematics, morphology and ecology. *Tijdschrift voor Entomologie* 117: 1-25). *Lipara rufitarsis* is currently listed as Notable and *L. similis* as Red Data Book category 2 - Vulnerable (Falk, S. J. 1991. A review of the scarce and threatened flies of Great Britain, Part 1. Research and Survey in nature conservation 31: 1-142). J. E. Collin gave details of records for *L. rufitarsis* collected in Devon and at Chippenham Fen, Cambridgeshire (Collin, J. E. 1946. The British genera and species of Oscinellinae (Diptera, Chloropidae). *Trans. Roy. Ent. Soc.* 97: 117-148) whilst more recently it has been found in Berkshire, Cornwall, Dorset, Hampshire, Huntingdonshire, Oxfordshire, Suffolk, Surrey and Warwickshire (John Ismay, *pers. comm.*).

During late winter and early spring 2000 MJ collected numerous *Lipara* galls as part of a study into the hymenopterous parasites associated with cecidogenous flies. Most were assumed to be of *L. lucens* but when adults began to emerge during the following June it was clear that both *L. lucens* and *L. rufitarsis* were present. The data are:

Ex gall 1392 – a collection of galls thought to be of *L. lucens* on *Phragmites* growing sparsely on the edge of saltmarsh, Egypt Bay, High Halstow, OS grid reference TQ 7778, 28.ii.2000. Em. *L. lucens* 5.vi, 8.vi and 12.vi.2000; *L. rufitarsis* 5.vi.2000. This collection also produced several specimens of *Polemochartus liparae* (Giraud) (Hymenoptera: Braconidae) and two nymphs of *Conocephalus dorsalis* (Latreille) (Orthoptera: Conocephalidae), the latter presumably from eggs deposited in or about the galls.

Ex gall 1436 – a gall collected as *L. rufitarsis* on *Phragmites* growing in a ditch adjacent to path leading into a new reserve, Grove Ferry, Stodmarsh NNR, TR2362, 9.iv.2000. Em. *L. rufitarsis* 17.vi.2000.

Ex gall 1439 – a collection of galls thought to be of *L. lucens* on *Phragmites* growing along the edge of the Gravesend-Higham canal or in an adjacent ditch, Shorne, TQ 6973, 26.iv.2000. Em. *L. lucens* 13.vi.2000; *L. rufitarsis* 13.vi.2000.

Ex gall 1440 – a collection of pupae extracted from *L. rufitarsis* galls on *Phragmites* growing along the edge of the Gravesend-Higham canal or in an adjacent ditch, Shorne, TQ 6973, 26.iv.2000. Em. *L. rufitarsis* 15.vi.2000.

Ex gall 1441 – from a gall thought to be of *L. lucens* on *Phragmites* growing along the edge of the Gravesend-Higham canal or in an adjacent ditch, Shorne, TQ 6973, 26.iv.2000. Em. *L. rufitarsis* 4.vi.2000.

Ex gall 1442 – a collection of pupae extracted from galls on *Phragmites* growing along the edge of the Gravesend-Higham canal or in an adjacent ditch, Shorne, TQ 6973, 26.iv.2000. Em. *L. rufitarsis* 4.vi and 17.vi.2000.

Ex gall 1444 – ex pupa from a gall thought to be of *L. lucens* on *Phragmites* growing along the edge of the Gravesend-Higham canal or in an adjacent ditch, Shorne, TQ 6973, 26.iv.2000. Em. *L. rufitarsis* 17.vi.2000.

Ex gall 1447 – a collection of galls thought to be of *L. rufitarsis* on *Phragmites* growing along the edge of the Gravesend-Higham canal or in an adjacent ditch, Shorne, TQ 6973, 26.iv.2000. Em. *L. rufitarsis* 8.vi and 13.vi.2000.

On 25.vi.2000, LC attended a meeting of the Kent Field Club which included part of the Stour Valley Walk at Fordwich (TR 185597). At about 15.30 hours, sweeping was confined to a grassy strip bordering a substantial *Phragmites* bed and within which were a few young plants of the grass. It was here that a single male of *L. rufitarsis* was obtained.

MJ's experience of *L. lucens* and *L. rufitarsis* in Kent suggests that:

- Both species can occur in the same stand of *Phragmites*;
- Both species can occur in dry, poor growth and sparse stands;
- Typical galls of *L. rufitarsis* are generally much smaller than those of *L. lucens* and can be readily identified as such;
- *L. lucens* galls are always large cigar-shaped growths;
- Some *L. rufitarsis* galls may be larger and hence confused with *L. lucens*;
- In doubtful cases the larvae of the two species can be differentiated by the extent of sclerotisation on the anterior segments.

Of the eighteen British species of *Meromyza*, at least thirteen have now been recorded from Kent and details of some were given by Ismay (1981. British *Meromyza* (Dipt., Chloropidae), *Ent. mon. mag.* **116**: 177-197). *Meromyza hispanica* Fedoseeva, 1971 was added to the British List by Drake (1987. *Meromyza hispanica* Fedoseeva 1971 (Dipt., Chloropidae) new to Britain. *Ent. mon. mag.* **123**: 217-218) on the basis of a male and presumed female taken on 7.vii.1983 at Moorlinch on the Somerset Levels. The specimens were obtained from a herb-rich ditch, dominated by *Carex* and *Juncus* spp., on fen peat. On 11.vii.1987, LC obtained a single male, subsequently identified by Dr Ismay, from Holy Well Fen near Folkestone (TR 22273818). The site is a small area of peaty ground and dominated, at the time, by *Chrysosplenium oppositifolium*, *Epilobium hirsutum*, *Carex* spp. and *Iris pseudacorus*.

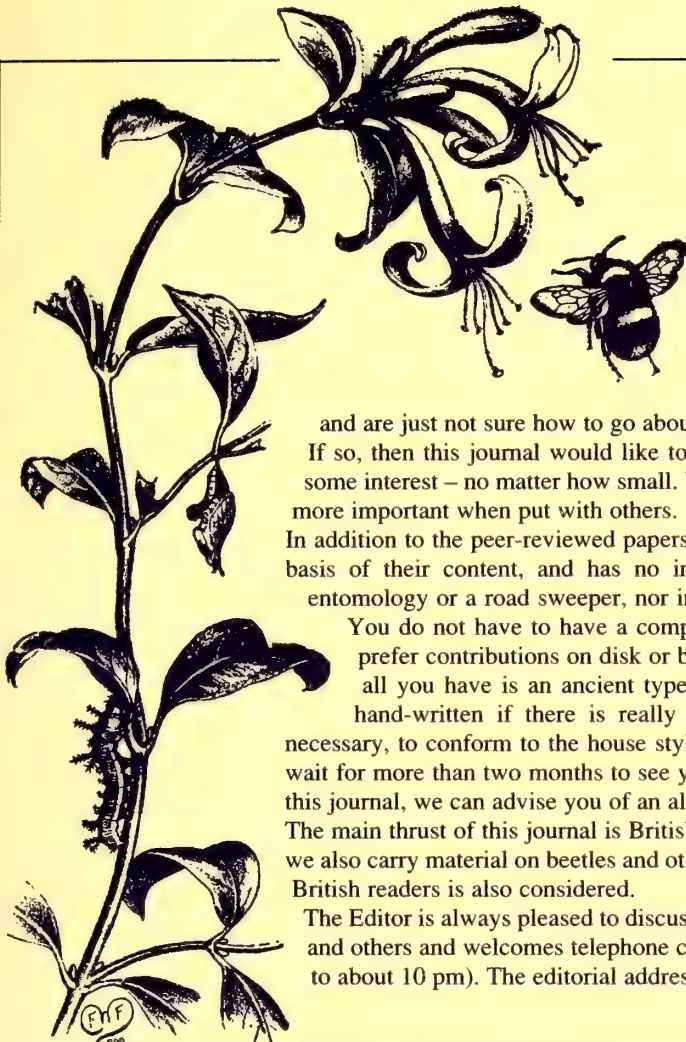
Chloropsina varleyi Ismay, 1999 was described from a male taken by G. C. Varley from soil under an oak tree at Wytham Wood, Oxfordshire on 13.v.1949, with other data from Otmoor Ranges, Oxfordshire, Wicken Fen, Cambridgeshire and Woodwalton Fen, Huntingdonshire (Ismay, J. W. 1999. The British and Irish genera of Chloropinae (Dipt., Chloropidae). *Ent. mon. mag.* **135**: 1-37). A further male, again identified by Ismay, was taken by LC at Burham Down (TQ 7462) on 10.vii.1994. It is not possible to give exact details of the area from which the specimen was swept although much of the area comprises chalk grassland and scrub.—LAURENCE CLEMONS, 14 St. John's Avenue, Sittingbourne, Kent ME10 4NE & MALCOLM JENNINGS, 206 Lower Higham Road, Gravesend, Kent DA12 2NN.

A further note on the occurrence of *Tachystola acroxantha* (Meyr.) (Lep.: Oecophoridae) and additional Cornish records

Following our initial reports of the occurrence of *T. acroxantha* at Fleet in North Hampshire (*Ent. Rec.* **110**: 83; **111**: 20) data has been gathered on the flight periods of this moth. It does seem to be bivoltine, with two apparently non-overlapping flight periods. The spring brood occurs in much smaller numbers than the autumn one, which may reflect mortality over the winter months but also the frequency which the trap is inspected. The moths may be found sitting on the vanes of the Heath trap (6 Watt actinic tube) shortly after dusk, with only some entering the trap overnight. *T. acroxantha* is also attracted to house lights, particularly the fluorescent light from the utility room. The flight periods for the last four years are given below, with the data for 1997 being incomplete as the moth was only discovered in September of that year.

Year	Spring flight period			Autumn flight period		
	First date	Last date	Total moths	First date	Last date	Total moths
1997				26.ix	18.x	5
1998	4.v	4.v	1	20.ix	21.x	9
1999	13.vi	13.vi	1	11.ix	9.x	2
2000	5.v	15.v	7	9.ix	15.x	15

It is interesting to note the yearly variation (in such a small sample) in numbers trapped. A particularly good year was 2000, with a peak of five being obligingly present on National Moth Night (23 September). We suspect that *T. acroxantha* to be more widespread than is presently reported and that the long awaited Volume 4 of *Moths and Butterflies of Great Britain and Ireland* (Harley Books) will provide an impetus for the recording of this striking Oecophorid. We are pleased to report that RP has discovered a new colony at Hatt, in Cornwall, since moving there in 1999 and has regularly trapped specimens at mercury vapour light. The species seems locally widespread as Bill Birkett has recently trapped it in some numbers at Callington (seven or eight miles north of Hatt).—ROB EDMUNDS, 32 Woodcote Green, Calthorpe Park, Fleet, Hampshire GU13 8EY & RON PARFITT, 41 Vollards Lane, Hatt, Saltash, Cornwall PL12 6PT.



AFRAID TO WRITE?

Have you discovered something that might be of interest to other entomologists, but are a little unsure if it is really worth printing? Or perhaps you think it is worth putting into print

and are just not sure how to go about it?

If so, then this journal would like to hear from you. Almost all discoveries are of some interest – no matter how small. Very often an isolated observation can become more important when put with others.

In addition to the peer-reviewed papers, this journal also accepts shorter notes on the basis of their content, and has no interest whether the author is a professor of entomology or a road sweeper, nor in whether he or she can write perfect English.

You do not have to have a computer to contribute – although we certainly do prefer contributions on disk or by e-mail. This should in no way put you off if all you have is an ancient typewriter. We even accept contributions that are hand-written if there is really no alternative. We will rewrite the note, if necessary, to conform to the house style. At present moment you will rarely have to wait for more than two months to see your name in print. If notes are not suitable for this journal, we can advise you of an alternative and forward them for you.

The main thrust of this journal is British moths (macro and micro) and butterflies, but we also carry material on beetles and other groups. European information of interest to British readers is also considered.

The Editor is always pleased to discuss potential contributions with first time authors and others and welcomes telephone calls on 01279 507697 (daytime or evenings up to about 10 pm). The editorial address is printed inside the front cover of this issue.

Entomologist's Monthly Magazine

Caters for articles on all orders of insects and terrestrial arthropods, specialising in the British fauna and groups other than Lepidoptera. Published March, July and November (4 months per issue)

Annual subscription UK and Europe £33 (\$72), USA and Rest of World £36 (\$79).

Entomologist's Gazette

An illustrated quarterly, devoted to Palaearctic entomology. It contains articles and notes on the biology, ecology, distribution, taxonomy and systematics of all orders of insects, with a bias towards Lepidoptera. Caters for both the professional and amateur entomologist. Published January, April, July and October.

Annual subscription UK and Europe £29 (\$64), USA and Rest of World £33 (\$72).

The Moths and Butterflies of Cornwall and the Isles of Scilly

by F.H.N. Smith (County Species Recorder)

The systematic list gives details of localities, dates and provenance for over 1500 species, also noting the status currently assigned by English Nature to the nationally uncommon or endangered species which occur in Cornwall. Listed are species gained since the Victoria County History, 1906, and those not since recorded. 480 pages including 152 colour illustrations. **Hardback £44 + P&P £3.**

Handbook of Palaearctic Macrolepidoptera

VOLUME 1 Sesiidae – Clearwing Moths

by K. Špatenka, O. Gorbunov, Z. Laštůvka, I. Tošovski and Y. Arita

Synonymic lists, descriptions section, full data on male and female genitalia, bionomics and habitat and distribution maps. Most species illustrated by superb watercolour paintings by Starý, Holzinger and Gregor. Published October 1999. **Price £120 + P&P: UK £5, Overseas £10.**

Payments by cheque or Giro Transfer to account no. 467 6912.

*For further details
please write to:*

GEM PUBLISHING COMPANY
Brightwood, Brightwell,
Wallingford, Oxon OX10 0QD



THE ENTOMOLOGIST'S RECORD

AND JOURNAL OF VARIATION

<http://members.netscapeonline.co.uk/colinwplant/entrechome.html>

Contents

Regional variation in the proportion of plain and banded forms of the Riband Wave <i>Idaea aversata</i> (L.) (Lep.: Geometridae) in Great Britain. <i>Roy Leverton</i>	145-151
<i>Pelomyia occidentalis</i> Williston (Dip.: Tethinidae) new to Britain and Germany. A. G. Irwin, J. H. Cole and W. A. Ely	153-156
<i>Chloroclysta truncata</i> Hufn. (Lep.: Geometridae): a remarkable increase in the incidence of <i>f. rufescens</i> Strom. at Dartford. <i>Brian K. West</i>	157-160
The Wall Brown <i>Lasiommata megera</i> L. (Lep.: Nymphalidae) in Northumberland, 1976-2000. <i>H. A. Ellis</i>	161-170
<i>Craspedolepta nebulosa</i> (Zetterstedt) (Hem.: Psyllidae), a psyllid new to Ireland. <i>J. P. O'Connor</i>	189-190

Notes

Pearl Bordered Fritillary <i>Boloria euphrosyne</i> L (Lep.:Nymphalidae): A March Record? <i>R.C. Dening</i>	151
Once bitten... <i>Richard A. Jones</i>	152
Predation by bird (White-breasted Woodswallow, <i>Artamus leucorhynchus</i>) on butterfly (<i>Papilio</i> species) in Kuching, Sarawak (Borneo). <i>W. John Tennent</i>	152
Clouded yellow breeding in urban London. <i>Richard A. Jones</i>	160
<i>Callistus lunatus</i> (F.) (Col.: Carabidae) at Box Hill in 1964. <i>A. A. Allen</i>	160
<i>Sophrionia semicostella</i> (Hb.) (Lep.: Gelechiidae) in North Hampshire. <i>Alasdair Aston</i>	170
Hazards of butterfly collecting: Airport Hotel, Lagos – Nigeria 1978/80. <i>Torben B.</i> <i>Larsen</i>	175-176
Migration of Nymphalid butterflies in southern Laos, Indo-China (Lep.: Nymphalinae: Danainae). <i>W. John Tennent</i>	176-177
British Moth websites. <i>Rob Edmunds</i>	178-179
More Insect Web Sites. <i>Colin W. Plant</i>	179-180
Unseasonable Stag Beetles. <i>A. A. Allen</i>	180
Seventh update of early emergences of moths at Selborne, Hampshire. <i>Alasdair Aston</i>	181-184
Not quite observations of snow fleas <i>Boreus hyemalis</i> (L.) (Mecoptera: Boreidae) feeding. <i>John Bratton</i>	184-186
<i>Megapenthes lugens</i> Redt. (Co.: Elateridae) bred from elm: a belated Windsor record, and further notes. <i>A. A. Allen</i>	186
<i>Bledius talpa</i> Gyll. (Col.: Staphylinidae): a postscript. <i>A. A. Allen</i>	187
<i>Phragmatobia fuliginosa</i> L. (Lep.: Arctiidae): first generation at light and third generation examples in Kent. <i>B. K. West</i>	187
<i>Lipara rufitarsis</i> Loew (Dip.: Chloropidae) in Kent, with belated records of two other species of Chloropidae. <i>Laurence Clemons & Malcolm Jennings</i>	190-192
A further note on the occurrence of <i>Tachystola acroxantha</i> (Meyr.) (Lep.: Oecophoridae) and additional Cornish records. <i>Rob Edmunds & Ron Parfitt</i>	192

Obituary

Edward Frank Hancock (1921-2001)	171-174
----------------------------------------	---------

Book Review

<i>Photographic Guide to the Butterflies of Britain & Europe</i> by Tom Tolman	188
------------------------------------------------------------------------------------------	-----

PUBLISHED BI-MONTHLY

Vol. 113

Part 5

SMITHSONIAN

MAR 03 2002

LIBRARIES

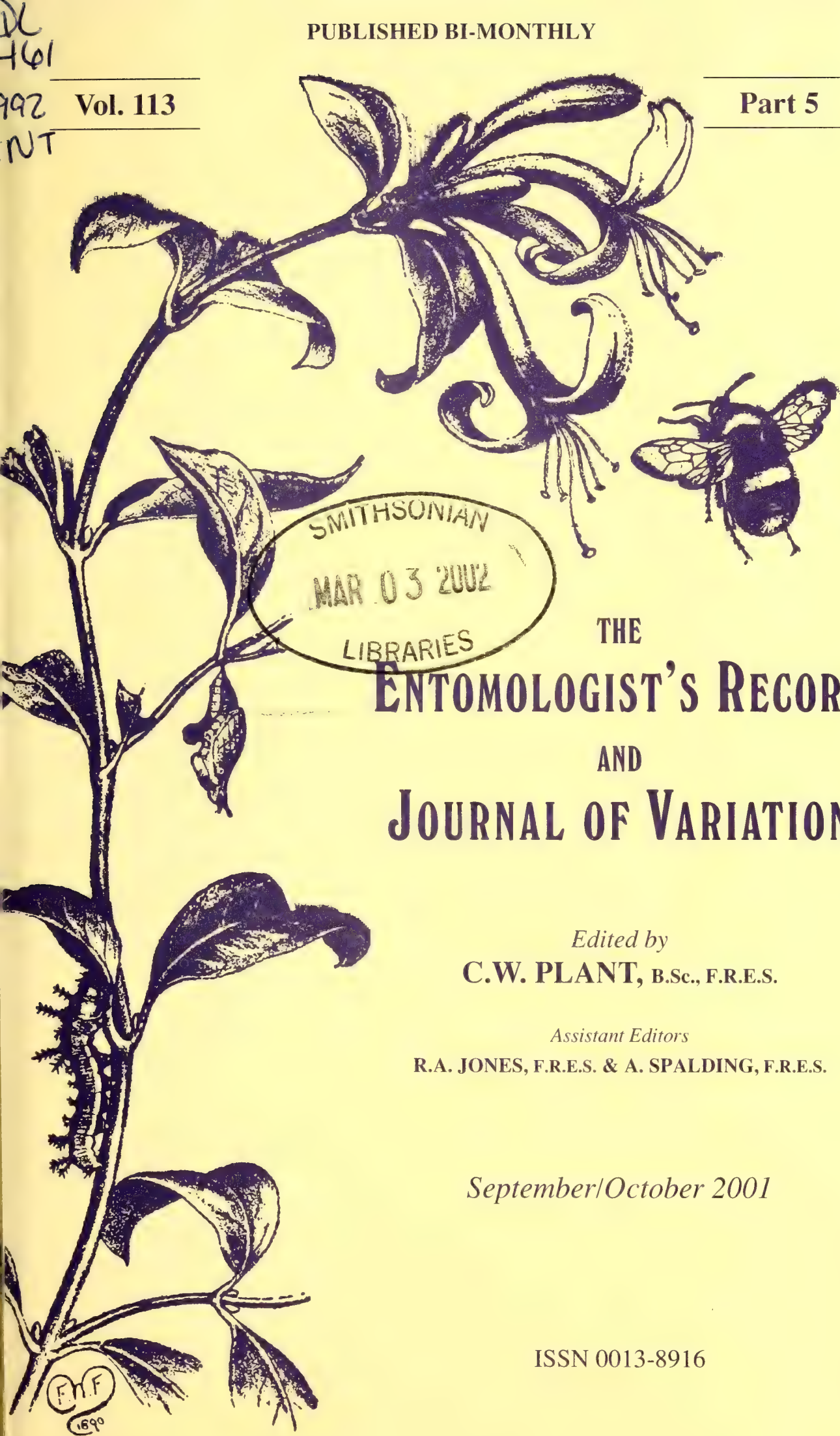
THE
ENTOMOLOGIST'S RECORD
AND
JOURNAL OF VARIATION

Edited by
C.W. PLANT, B.Sc., F.R.E.S.

Assistant Editors
R.A. JONES, F.R.E.S. & A. SPALDING, F.R.E.S.

September/October 2001

ISSN 0013-8916



THE ENTOMOLOGIST'S RECORD

AND JOURNAL OF VARIATION

World List abbreviation: *Entomologist's Rec. J. Var.*

Editor

C.W. PLANT, B.Sc., F.R.E.S.

14 West Road, Bishops Stortford, Hertfordshire CM23 3QP.

Telephone: 01279 507697

Assistant Editors

R.A. JONES, B.Sc., F.R.E.S., F.L.S. & A. SPALDING, M.A., F.R.E.S.

Editorial Panel

A.A. Allen, B.Sc., A.R.C.S.

N. L. Birkett, J.P., M.A., M.B., F.R.E.S.

J.D. Bradley, Ph.D., F.R.E.S.

J.M. Chalmers-Hunt, F.R.E.S.

P.J. Chandler, B.Sc., F.R.E.S.

C.A. Collingwood, B.Sc., F.R.E.S.

C.J. Luckens, M.B., Ch.B., D.R.C.O.G.

B. Skinner

P.A. Sokoloff, M.Sc., C.Biol., M.I.Biol., F.R.E.S.

Registrar

R.F. McCormick, F.R.E.S. 36 Paradise Road, Teignmouth, Devon TQ14 8NR

Hon. Treasurer

C.C. Penney, F.R.E.S. 109 Waveney Drive,
Springfield, Chelmsford, Essex CM1 7QA

Photograph Editor

David Wilson, 9 Lode Lane, Wicken,
Cambridgeshire CB7 5XP

WHERE TO WRITE

Papers, notes, books for review, notices, adverts etc – *Editor*

Changes of address – *Registrar*

New subscriptions, renewals, donations, non-arrival of Journal – *Treasurer*

Back issues – Paul Sokoloff, 4 Steep Close, Green Street Green, Orpington, Kent BR6 6DS

ANNUAL SUBSCRIPTION RATES

Individual subscriber £28

Institutional subscriber £40

Readers are respectfully advised that the publication of material in this journal does not imply that the views and opinions expressed therein are shared by the Editor, the Editorial Panel or any party other than the named author or authors.

Guidelines for contributors

We welcome articles for publication from all sources. It is not necessary for authors to be subscribers. Please follow the format of articles in this issue of the journal. Full instructions may be obtained by post from the editor or via our web site at:

<http://members.netscapeonline.co.uk/colinwplant/entrechome.html>

We are now able to include colour or black and white photographs (or slides), where these effectively illustrate a point in your article.

We publish notes and peer-reviewed papers on **British Isles** insects, primarily Lepidoptera and Coleoptera, but contributions on any other group may also be sent. We also include articles on European species in some situations, where we believe this to affect the British Isles fauna or to be of interest to British Isles entomologists. Non-European articles may be included, rarely, and entirely at editorial discretion.

All papers are subject to peer-review and are almost always returned to the author for corrections to be made. Authors should be prepared to make changes. Notes and communications are reviewed by the editorial panel and are not normally returned to authors for checking.

We are able to accept typed papers and notes, or even hand-written notes, if necessary. However, it helps enormously to receive manuscripts via E-mail or on floppy disk, in a PC-compatible format that can be read by Microsoft Word 2000. Drawings, graphs, photographs etc may be sent in an electronic form that has been previously agreed with us. In all other cases, we need the originals (which will be returned).

Authors of papers may receive 25 free reprints and can pay for more. All reprints must be ordered on a form provided with the proofs. Reprints of notes are not provided unless specifically requested **at the time of submission**.

The editor is always happy to discuss contributions with authors and will be especially pleased to offer help to anyone writing an article for the first time.

**GRAZING AND CUTTING AS CONSERVATION MANAGEMENT
TOOLS – THE NEED FOR A CAUTIOUS APPROACH, WITH
SOME EXAMPLES OF RARE MOTHS WHICH HAVE BEEN
ADVERSELY AFFECTED**

PAUL WARING

Windmill View, 1366 Lincoln Road, Werrington, Peterborough PE4 6LS.

THERE ARE NOW numerous books, booklets and papers dealing with grazing for conservation purposes and some now include the preferences of the different species of butterflies. An early one, which is still a good starting point is *The management of chalk grassland for butterflies* (NCC, 1986) which includes a helpful table showing that in general the blues (*Lycaenidae*) prefer shorter swards than the browns (*Satyrinae*). The grassland section in Peter Kirby's habitat management handbook (Kirby, 1992) is still one of the best balanced and most graphic accounts which considers the varied needs of invertebrates as a whole, as does the more complex treatment in *Habitat conservation for insects* edited by Fry & Lonsdale (1991) and *The lowland grassland management handbook* by Crafts & Jefferson (1999). The purpose of this article is not to duplicate the advice in these texts, but to highlight a few recent examples of grazing or mowing issues affecting some of the rarer British moths.

Grazing can be a real problem subject, both on conservation sites and elsewhere. The first aim on conservation sites really should be to identify the vision of what the grazing is to achieve – what should the site look like under satisfactory management? In my view the vision should be based on what is known of the requirements of the priority animals and plants which occupy the site. Where little is known, the aim is usually to maintain consistency with historical management under the assumption that what is there now has persisted under that regime. This assumes that management has indeed been consistent and that we can reproduce it, which is not necessarily the case. Also, in my view, many species have survived on some sites in spite of management, surviving adverse conditions in adjacent habitat which may no longer be present. Sometimes they can do better under management which addresses their needs more directly.

The vision of the site needs to be agreed and defined as specifically as possible at the start so that everyone involved is working to the same end, but it seldom is. Then there are the issues of what livestock to use, what is available, when to put them on, how many and for how long, and where to put them when they have achieved the desired result. The stockman may have additional worries such as water supply and stock safety. The rate of growth of grasses and herbs varies from season to season and depends on rainfall, temperature, and other factors, so grazing by a certain number of animals for a particular time can produce different results in different years, perhaps varying from just a light graze to stripping the ground bare. With so many variables, it is little wonder that every year I receive reports and see examples

of sites disastrously overgrazed, while other sites are overly rank or neglected because suitable grazing cannot be arranged. To further complicate matters, the vision to aim for varies greatly depending on the type of site and the priority species on it. A closely grazed sward may be appropriate for downland where the Large Blue *Maculinea arion*, Adonis Blue *Lysandra bellargus* or Silver-spotted Skipper *Hesperia comma* occur, but it is unlikely to be the best option on most wet meadows, where many Lepidoptera depend on the full growth of herbs and forbs. Even on downland, there are many species which require a longer sward. The colourful, dayflying Six-spot Burnet moth *Zygaena filipendulae* and the Narrow-bordered Five-spot Burnet *Z. trifolii* will be familiar to most readers, but think where you see them most. Usually they are on roadside verges and other marginal land which escapes heavy cutting or grazing. Both spin their cocoons high up on grass stems, which are not present in closely shorn swards. Species are also likely to be associated with taller swards if part of the life cycle depends on the flowers or seedheads of the foodplant, such as the larvae of the Netted Pug *Eupithecia venosata* and the Tawny Shears *Hadena perplexa*, both of which feed on the ripening seeds of Bladder Campion *Silene vulgaris*. The Marbled White *Melanargia galathea* is widely known to favour longer swards, so if the wonderful sight of large numbers of these butterflies is an important one on a site, the last thing you would wish to do would be to graze it flat.

Black-veined Moth *Siona lineata* (Scop.)

The use of appropriate grazing at one of the four surviving sites for this endangered and protected moth, in Kent, has enabled the English Nature Species Recovery Programme to build up numbers of adults to the point where they have dispersed and colonised at least one and possibly two additional sites. First, the ecology of the moth was studied, then the vision of the ideal site was formulated, then the skill of land managers was used to achieve it, and the increase in numbers followed. The summary specification was to provide the moth with a sward of Tor-grass *Brachypodium pinnatum* 10-25 cm in height when measured in June (see *Butterfly Conservation News* 50: 51-53 for method), with Marjoram *Origanum vulgare*, the major larval foodplant, present in every other pace when walking through the sward. This has been achieved by careful winter-grazing by cattle. Having sheep on in March or April proved disastrous in that they ate most of the fresh spring growth of Marjoram that the overwintered larvae needed to complete their growth. Incidentally, the larva spins its vertical cocoon in grass tussocks from the previous year and the adult moth lays its eggs on grass-blades, so a short sward of Marjoram without grass is no use.

There have been other grazing disasters in this Recovery Project. A potential establishment site was grossly overgrazed when the BSE crisis meant that the cattle could not be sold as planned and were left on site for too long. Three years later and the site has only partly recovered. The rare Straw

Belle moth *Aspitates gilvaria* occurs on this site and only survived by occupying the longer swards surviving around the lip of an adjacent quarry. Overgrazing by sheep and cattle on part of one of the sites occupied by the Black-veined moth has reduced the population density of this species to a fraction of that on an adjacent part of the site from which the livestock have been largely excluded. Furthermore, such overgrazing, possibly accompanied by past use of fire to burn off excess grass, has been implicated in the loss of Adders *Vipera berus* Forester Moths *Adscita statices* and the Duke of Burgundy butterfly *Hamearis lucina* from this site, and all the losses have occurred since it became a nature reserve!

At one of the other sites it has been found that the rate of change in the sward is so slow that grazing is needed only infrequently, due to thin soils. Grazing or cutting the sward has not been necessary for several years and grazing has been avoided because of the risks of it going wrong. The population density of Black-veined moths on this site is still the highest of all known sites and the Duke of Burgundy *Hamearis lucina* is also doing well under this regime. Another site has been subdivided and only one part is grazed in any year, again to avoid a catastrophe affecting the whole site, which still retains a population of Adders. At the same time, other former sites for the Black-veined moth have been completely lost to encroachment by scrub through lack of grazing or any other form of management.

It should be noted that by creating a small-scale mosaic of different sward lengths on part of one site, it has been possible to support the Black-veined moth with its long-sward requirements alongside the Adonis Blue, which is presumably breeding in the gaps between the tussocks. This has much greater potential for invertebrates than a sward grazed uniformly short all over. Cattle are better than sheep in achieving such mosaics because of the way they feed by pulling holes in the sward rather than nibbling it.

Silky Wave *Idaea dilutaria* (Hb.)

The Silky Wave is known from only three sites in Britain. One of these, on the Great Orme in North Wales, is so overgrazed by sheep in some years that the moth is confined to the few places where Common Rock-rose *Helianthemum nummularium* can still thrive and flower, the small hollows where the soil is probably a bit deeper and growth faster, and where the sward is protected to some extent by growing amongst low scrub.

More problems of overgrazing in uplands and lowlands

Overgrazing by sheep is a large-scale problem in many upland areas, affecting the habitat of many moths. In extreme cases it can turn heather-dominated moorland to rough grassland, leaving a long list of moorland species homeless. Domestic stock and deer have devastated the ground-flora and under-storey of some upland woods and lowland areas including the New Forest, with potentially large but generally unmeasured effects on the moth

fauna. David Green's recent study of the fauna and moth records from the New Forest (Green, 2000), demonstrates that a disproportionate number of the declines and losses of Lepidoptera from the New Forest have occurred amongst those species dependent on larval foodplants which are part of the ground cover, compared to species dependent on the tree canopy and other places out of reach of grazing and browsing animals (Green, 2000).

The New Forest Burnet moth *Zygaena viciae argyllensis* Tremewan

Overgrazing nearly wiped out the last remaining British colony of the New Forest Burnet moth in the late 1980s. The colony is on a remote grassy slope in western Argyll where the larvae feed on legumes (eg., *Lathyrus* and *Lotus* spp.). The moth only survived because there were some rocky ledges inaccessible to sheep. Since 1990, the area has been fenced to exclude sheep. As a result the moth has re-colonised the longer, herb-rich sward which is now growing again on the main slope and its population has increased substantially.

Some other case histories of nationally scarce moths

A number of other nationally scarce or local moths associated with legumes are threatened by overgrazing. The Belted Beauty *Lycia zonaria* is suffering on its few mainland sites in western Scotland and on some of the offshore islands where the caterpillars feed on Bird's-foot Trefoil *Lotus corniculatus*. Lepidopterists have returned to sites where the larvae used to be abundant, only to find them grazed flat, with no trace of larvae. The Scarce Forester *Adscita globulariae* was nearly wiped out at its single colony in Kent in 1994/95 by overgrazing arranged by a conservation agency within a couple of years of the rediscovery of the moth there. The larva feeds on the foliage of Common Knapweed or Hardhead *Centaurea nigra* and Greater Knapweed *C. scabiosa* and overwintering larvae probably also benefit from the presence of a layer of plant litter for winter shelter. Less intensive grazing of this site has since been agreed. The Forester moth *A. statices* used to be called the Common Forester until it became so localised that this was a nonsense. It has suffered greatly as permanent pasture has been ploughed up or reseeded for other agricultural uses. It also likes a well-developed sward. It was wiped out at Wye Downs National Nature Reserve in Kent by overgrazing when the site became a nature reserve and in Kent is now only known from a single site which is infrequently cut and where herbs are allowed to flower and set seed. Both the sites where the Essex Emerald moth *Thetidia smaragdaria* was last seen in the wild have been so over-managed in the last couple of years, in one case by sheep-grazing and in the other by mowing, that the larval foodplant (Sea Wormwood *Artemisia maritima*) has been completely wiped out. It is very likely that colonies of this moth were lost this way in the past.

So grazing really is a double-edged sword, it can easily be overdone and be very damaging. The biggest problem is that if grazing makes a site unsuitable

for a species, even for just a year or two, it is unlikely to find its way back because sites have become isolated islands separated by a hostile environment. As a conservation tool grazing is best used only when needed, cautiously and in an informed way, with careful monitoring of the results. The lightest possible stocking levels are best, this giving more leeway in general and in case the stock remain on site for longer than intended. If in doubt, graze only part of the site at any one time.

Herbaceous plants in the sward

Apart from keeping a watch on the length of the sward, the frequency and size of the herbaceous plants in the sward is very important. Often sheep will selectively graze out some herbs so that they are very small and scarce even when the grass sward still looks substantial. Conversely, if grass growth and the build-up of grass litter are not checked at all, the growth of herbs may be swamped or suppressed. Many moths need specific herbs to be present as larval foodplants, and a wide variety of flowering herbs extends the amount and time of availability of nectar for adult moths. Like many other insects of grasslands, the species of moths which live there often visit the flowers of woody plants in adjacent hedgerows or the edges of woods for nectar also.

Measurements for monitoring sward characteristics

Because of the influence of sward height and the frequency of particular herbs, it is important to have simple and quick means of measuring and defining them. The Boorman drop-disc method is very effective for measuring sward height and was described in *Butterfly Conservation News* 50: 51-53. I measure the frequency and distribution of particular herbs by counting the number of paces in which the plant is seen in a 50 or 100 pace transect line through the sward. By recording the number of each pace as I walk the transect, I also obtain an indication of whether the plant is distributed evenly throughout the sample or clumped, say just in the early paces or the last ones, with big gaps in between. Thus the management prescription for the Black-veined moth is to achieve a sward in the range of 10-25cm in height, as measured by the drop-disc method, with a frequency of Marjoram of 50%, preferably at least one plant in every other pace. The larva has been recorded feeding on other plants besides Marjoram but Marjoram is just about the only foodplant at one of its sites and is a good indicator of an appropriate sward at the other three. When Marjoram is frequent other suitable herbs usually are too.

Mosaic habitats

Although different species of moths and butterflies may vary in sward preferences, it is possible for them to coexist in the same area by managing not for a uniform sward (uniformity is always a bad idea when the aim is to

conserve diversity) but for a small-scale mosaic of different sward heights, from bare ground to tussocks side by side. In fact, some Lepidoptera, and many other invertebrates, use several components of the mosaic. The caterpillar of the Black-veined moth roosts on dead grass stems from the previous year and spins its cocoon among the blades of the current year, on which the eggs are also laid, but likes to feed on the Marjoram in the holes in the sward, without letting go of the grass stems with its hind end, so it really does need a close juxtaposition. Many other moth species have larvae which bask in the short patches but over-winter in the cover provided by litter or grass tussocks.

The need for annual grazing or mowing

There is no question that without some form of grazing, hay-cutting or mowing, grassland sites can become too rank, or overgrown with scrub. However, the speed with which the habitat changes is seldom such that grazing or cutting is needed on an annual basis over the whole site. Again, dividing up a site into two or more compartments can be a help, allowing the grazier an annual visit, but not to the same bit of ground every year.

Gradual versus episodic change

A feature of low intensity grazing is that the rate of removal of vegetation may simply keep up with plant growth, resulting in no sudden or dramatic change, unlike cutting or mowing an area. Moth catches in light-traps and butterfly counts by day typically crash after an area is cut. I doubt that this is because large numbers are killed during the cutting and I presume that the adults simply move away because the cut area no longer suits them, at least in the short-term. The survival of such species on site depends on the eggs already laid before the cut, and/or the opportunities to recolonise from elsewhere as the site recovers.

Conservation management now a major factor to watch

As a greater proportion of the surviving sites for rare species become SSSIs and nature reserves, through designation or the loss of the unprotected ones, so management in the name of conservation is becoming the major cause of change, and sometimes damage, to these species.

As a striking example of what still happens, in 1997 there was a spectacular instance of a rare moth being adversely affected by ill-planned cutting, at Askham Bog nature reserve, Yorkshire, which is well-known amongst lepidopterists for an isolated colony of the Marsh Carpet *Perizoma sagittata*. An experienced lepidopterist visited the site en route to a holiday in Scotland and was delighted to see and photograph a good number of larvae feeding on the flower-heads of Yellow Meadow-rue *Thalictrum flavum*, the sole foodplant, and he left the larvae to continue development. He revisited the site on his return journey, only to find that the plants had all been cut down. It is

not known whether any of the larvae were able to survive and pupate, where-as if the cutting had taken place a couple of weeks later, after pupation on the ground, the moths would be able to emerge next year and exploit the new growth from the perennial rootstocks. Moth larvae will always be lost during any cutting operation and, in the case of widespread species, the population as a whole will survive in the surrounding area and recolonise if necessary. But small and localised colonies of nationally scarce invertebrates merit special consideration, especially on sites where nature conservation is the primary aim.

The only reliable way to avoid such blunders is to make sure land managers know what key species are on the site, where they occur and when are they least vulnerable to management and to ensure that the whole population is never effected simultaneously by one management operation. This way even if the operation is a disaster, only a proportion of the population will be affected. It still surprises me how seldom such knowledge is available, even on sites which have been nature reserves for years. Perhaps the most usual situation is that there is a file consisting of a handful of casual observations from occasional visitors. Even when surveys are undertaken, there is often not the time to make them anywhere near comprehensive for moths because this would require at least monthly visits throughout most of the year.

Where detailed lists or records exist, this is no guarantee that harmful management will not take place, even on nature reserves and other sites where nature conservation is a major objective. Commonly the species lists have not been translated into adequate guidance for the land manager or his tractor driver or other employees. Furthermore, communications may break down or be forgotten as time goes by and as the personnel change, unless reminders are issued.

The booby prize for poor communication in large organisations

You may have supplied everyone with detailed information about the most endangered species on the site, you may have a joint project underway with the agency which manages the site, and you may have experiments in progress to investigate the effects of different types of management, but that is no guarantee that things will go smoothly, as was proved to me (not for the first time) in 1999. All this was in place with the Environment Agency concerning a colony of Fisher's Estuarine moth *Gortyna borelii* in Essex. On the day that I arrived to meet the local representative of English Nature, who was monitoring the management experiments, we discovered an Environment Agency digger in the act of dredging a dyke and dumping the spoil onto the experimental site while the adult moths were attempting to emerge from their pupae!

Some ways in which members of moth groups, branches of Butterfly Conservation and other lepidopterists can help in damage limitation

Let your county moth recorder or branch moth officer know of anything that you see regarding apparently unsuitable habitat management. It may be that

the lepidopteran interest has been considered but that there are other higher priorities, but it is just as likely that the needs of particular moths have not been considered. The county moth recorder is likely to have contact with or know of the relevant local conservation agencies who can advise on and follow up management issues, sometimes resulting in a more favourable outcome.

Find out and get to know the land-owners and managers of sites you visit regularly and keep them informed of the moths you see and what is known of their habitat requirements. The computer database package RECORDER has pre-written paragraphs on the status, habitat and foodplants of each moth species which can be used to automatically annotate any lists of species which you make. This is the simplest way of identifying the species of highest priority on the site and giving an indication of what the most important features of the site are likely to be. More detailed accounts have been published for the UK Biodiversity Action Plan species. If you are concerned about any Nationally Scarce or Red Data Book moth species you can also contact the Moth Officers at Butterfly Conservation, Manor Yard, East Lulworth, Wareham, Dorset, BH20 5QP. E-mail dgreen@butterfly-conservation.org).

Acknowledgements

I would like to acknowledge English Nature, Scottish Natural Heritage, the Countryside Council for Wales and Butterfly Conservation who have funded my work on the projects referred to in this article.

References

- Crafts, A. & Jefferson, R.G., 1999. *The lowland grassland management handbook*, (2nd edition). English Nature & The Wildlife Trusts, Peterborough.
- Fry, R. & Lonsdale, D. (Eds.). 1991. *Habitat conservation for insects: a neglected green issue*. *Bull. Amateur Entomologists' Soc.* **21**.
- Green, D.G., 2000. *The status of Lepidoptera in the New Forest*. Unpublished report by Butterfly Conservation for the Forestry Commission. Lyndhurst.
- Kirby, P., 1992. *Habitat management for invertebrates: a practical handbook*. RSPB.
- NCC, 1986. The management of chalk grassland for butterflies. *Focus on Nature Conservation* **17**. NCC.

Orange-tip *Anthocharis cardamines* (L.) (Lep.: Pieridae) recorded from *Brassica rapa*

Several caterpillars of the Orange-tip butterfly *Anthocharis cardamines* were found feeding on the developing siliquae of *Brassica rapa* on 5 June 2001. The determination was confirmed by Dave Goulson, University of Southampton. The site was at a canal boat moorings by the Kennett and Avon Canal near Claverton, Bath (O.S.grid reference ST 787633). Normally, this species is oligophagous with the preferred host plants being lady's smock *Cardamine pratensis*, garlic mustard *Alliaria petiolata* and charlock *Sinapis arvensis*; *C. pratensis* and *A. petiolata* are by far the most preferred food plant (Dempster,

1997. *Oecologia* **111**: 549-556), although it has been reported from some 35 other host plants (Courtney & Duggan, 1983. *Ecol Entomol* **8**: 271-281). Whilst this is by no means a new record, as it was reported by Courtney & Duggan (*op. cit.*), many of the previous observations should be questioned because of the considerable difficulty in the definitive identification of *B. rapa*. Many records of *B. rapa* are probably escaped oilseed rape *Brassica napus*, as the two species look remarkably similar. The owner of the site was persuaded to maintain the population of *B. rapa* intact, which presumably will go some way to conserve the local population of Orange-tips.—JAMIE P. SUTHERLAND, School of Biological Sciences, University of Southampton, Bassett Crescent East, Southampton SO16 7PX (Email: jamie.sutherland@soton.ac.uk).

Voltinism of Ruby Tiger *Phragmatobia fuliginosa* (L.) (Lep.: Arctiidae) and other macro-moths in the Watford district, Hertfordshire

In common with West (*Ent. Rec.* **113**: 187), and in contrast to Plant (1993. *Larger Moths of the London Area*. London Nat. Hist. Soc.), I find that the second generation of the Ruby Tiger *Phragmatobia fuliginosa* is common in the Watford area. Indeed, I have no personal observations of the spring generation, which only occasionally comes to light in Britain, and have never seen the species flying by day in Hertfordshire (vice-county 20). At Garston, the second brood was recorded at actinic light in three of the six years 1995-2000, on all occasions appearing between 20 July and 16 August; my records from other locations in the district during 2000 and 2001 display the same pattern. This increasing prominence of the second brood has, as West notes, been widely observed in the southern counties, and is reflected in the text of the two editions of Skinner (1984. *Moths of the British Isles*. Viking) – originally said to be “mainly single-brooded... with a partial second generation in August and September”, but the 1998 update confidently stating that the moth is double-brooded. The greater frequency at light of the second generation is there emphasised.

Three other species show a significantly different seasonal pattern to that recorded in Plant (*op. cit.*). The presumed second generation of the Straw Dot *Rivula sericealis* (Scop.), described as frequent in southern Britain by Skinner (*op. cit.*), but not mentioned in Plant, now appears to be annual in this district. Between 6 and 22 August 2000, I recorded the species in actinic traps at two local sites. In 2001 it was frequent at mv light at Garston between 22 June and 6 July; five weeks elapsed before another appeared on 13 August. For vice-county 30, Arnold et. al. (1997. *The Butterflies and Moths of Bedfordshire*. Bedfordshire Natural History Society) report the species as occurring up to the week of 10 – 16 September, and the published results for National Moth Night on 23 September 2000 (*Atropos* **13**: 2-15) show a widespread distribution on that date in the southern half of England and Wales, with one record for north-west England.

The second brood of Green Carpet *Colostygia pectinataria* (Knoch), described by Skinner as "occasional and partial", also seems to be growing in strength. Throughout August and September 2000 the species was very common in actinic traps in the Watford area. Plant refers to the August brood as being smaller than the May-July emergence, but this no longer appears to be the case: Hayward (2000. *AES Bulletin* 59: 137-164), in urban Berkshire (vice-county 22), reports the reverse, and describes the species as increasing. The National Moth Night results referred to above are similar to those for the Straw Dot.

A. A. Allen (*Ent. Rec.* 112: 10) puzzles over the voltinism of Willow Beauty *Peribatodes rhomboidaria* (D. & S.), another species which may be in the process of becoming double-brooded. Both Plant and Skinner refer to a possible second brood in September as occasional and partial. My own records for actinic light at Garston, covering the years 1995-2000, show a date range of 14 June to 9 September, with later individuals on 23 September 1998 and at mv light on 16 and 26 September 2000. Peak numbers are reached here in mid-August, rendering separation of the two suspected generations more difficult than in those species previously discussed. This species was also widely recorded through southern Britain (north to North Wales) during National Moth Night 2000. Allen's note bears an unfortunate misprint: the date referred to in the second line should read 11 June, not 1 (A. A. Allen, *pers. comm.*).— C. M. EVERETT, The Lodge, Kytes Drive, Watford, Herts WD25 9NZ.

More on the changing voltinism of Hertfordshire's moths

I was most interested to receive Colin Everett's contribution, above, on apparent changes in the voltinism of several moth species in southern Hertfordshire (which also falls within the "London Area" as defined in my 1993 work to which he refers). That work, of course, summarised a large number of records from a range of localities throughout the region covered, between the North Downs in Surrey and Kent, across the London Basin and out to the Chiltern chalk on the Hertfordshire boundary with Bedfordshire and Cambridgeshire. Inevitably, it took no real account of local variations, but presented an overview for the wider area. That having been said, it is clear that there are trends, in some species, towards larger, or even new, autumn broods. I cannot easily provide updated London Area data, but can do so for Hertfordshire, the data for which is fully computerised.

The Herts Moth Database shows records of Ruby Tiger *Phragmatobia fuliginosa* in the period 15 July to 18 August in the years from 1995 to 2001. This accords well with Everett's results of 20 July to 16 August. The same database (excluding Everett's own data), indicates records of Straw Dot *Rivula sericealis* on 30 May, 14-24 June, 2-4 July, 21-29 July and 5-25 August (inclusive dates indicating at least one record on every date in that band).

Hertfordshire data for the Green Carpet, is most interesting, as it suggests that there may in fact be three broods in a year. Records stop abruptly at 24 June, re-appear from 7-29 July then stop again until 13 August after which they continue to 23 September (Everett's records having been excluded). This present year, the August/September brood is certainly a large one, though almost all the individuals are diminutive.

Post-1994 Hertfordshire records of Willow Beauty *Peribatodes rhomboidaria*, with those submitted by Everett similarly eliminated, run from 16 June to 23 September, again in good accord with the Watford data. This date band is not continuous however, and fragments into six discrete units: 16-24 June, 1 July, 7 July, 15 July-29 August, 10 September then 21-23 September.—COLIN W. PLANT, 14 West Road, Bishops Stortford, Hertfordshire CM23 3QP.

Notes on possible overwintering Red Admirals *Vanessa atalanta* (L.) (Lep.: Nymphalidae) in Cambridge

There have been a number of notes in this journal recording the occurrence of Red Admirals *Vanessa atalanta* in Britain during the winter months (eg., *Ent. Rec.* **112**: 130; 187; 214) and such records are also a regular feature of the annual immigration reviews (eg., *Ent. Rec.* **112**: 68; 248). Many others continue to be reported in sundry publications and via telephone and electronic media. In Hertfordshire (vice-county 20), although I have no personal observations earlier than 20 March, winter records are now reported annually here or in adjoining Middlesex (Murray et. al. 1997-2001. *Hertfordshire and Middlesex Butterfly and Moth Reports*. Butterfly Conservation).

In Cambridge (VC 29), a Red Admiral was seen in a quadrangle at Wolfson College almost daily between 5 October and 17 November 2000, the dependability of this individual being in contrast to the transience of those moving south during the pronounced autumn migration that year. On several occasions it was seen to rest in the branches of a mature *Cedrus atlantica* cultivar, and this is likely to have been a regular roosting site. At nearby Trumpington, another Red Admiral was active in the late morning sunshine of 17 February 2001. The air temperature was about 8°C, and the habitat again included mature conifers as well as dense ivy.

The above observations demonstrate the continued difficulty in confidently ascribing winter records of this species either to overwintering, or to early immigration. My initial response was tentatively to allocate the Trumpington individual to the former category, as the previous five nights had all produced temperatures at or below freezing point, making unassisted movement into the country seem unlikely. Nevertheless, at least ten other Red Admirals were reported during February 2001, and most coincided, as did mine, with a sequence of records of Painted Lady *Vanessa cardui* (L.) in the south and south-west of England, most of which appear to have been migrants (*Atropos* **13**: 68).—C. M. EVERETT, The Lodge, Kytes Drive, Watford, Herts WD25 9NZ.

Parasitoid wasp *Dusona terebrator* (Forster) (Hym.: Ichneumonidae: Campopleginae) reared from larva of Marsh Moth *Athetis pallustris* (Hb.) in Lincolnshire

Of three final instar larvae of the Marsh Moth *Athetis pallustris* collected from the Saltfleetby-Theddlethorpe Dunes National Nature Reserve in Lincolnshire on 3 October 2000, for study as part of the UK Biodiversity Action Plan project on this moth, one later produced a single black and red parasitic wasp (Plate J). This wasp has been identified by Dr Klaus Horstmann of the University of Wurzburg, Germany (via Dr Mark Shaw, National Museums of Scotland, Edinburgh) as a female *Dusona terebrator* (Forster).

During my study of the three Marsh Moth larvae in outdoor conditions, I found that they fed on leaves of Ribwort Plantain *Plantago lanceolata* at intervals when the weather was mild, from October to early March. The parasitised larva spun a loose oval cocoon incorporating sand grains, under dry grass, in advance of the other two larvae, at some point between the end of January and mid-February 2001. The other two larvae, and others I reared in 1990, continued to feed and be mobile until the middle of March. The adult wasp emerged on 7 May 2001 and was recorded live on video-tape. On examination of the host cocoon, it was found to contain the larval skin of the host and the tightly spun almost blackish cocoon of the wasp, also shown in Plate J.

Larvae of the Marsh Moth have been surveyed annually since 1995 at this site by Gerry Haggett who collects a few each year in August. He informs me he has never yet reared a parasitoid from these larvae. The fact that I collected mine in October may be significant. Possibly the female wasps lay their eggs into the larvae between August and October when the larvae are nearly fully grown and preparing to overwinter. Alternatively, the wasp may be only a very occasional parasitoid of the Marsh Moth. However, it has been recorded at least once before from this species. Edelsten *et al.* (1944. *Hydrillula palustris* Huebner in England. *Entomologist* 67: 49-54, 65-72), report the rearing of a single parasitoid which emerged from a Marsh Moth cocoon on 23 April 1942, from one of over 46 larvae collected at Woodwalton Fen, Huntingdonshire in September and October 1941. The parasitoid was identified and reported as the wasp *Campoplex terebrator* (Forster) and this is the same species, which is still valid, (Horstmann, with access to the collections and notes of the late Rolf Hinz). In Edelsten's era this species was already known from various species of moth larvae, especially the Mottled Rustic *Caradrina morpheus*. Mottled Rustic larvae are sometimes found in litter piles together with those of the Marsh Moth when surveying the Saltfleetby site. Dr Horstmann reports that Hinz's notes also record that the wasp has been reared from Porter's Rustic *Proxenus (Athetis) hospes* (Freyer) in Italy. According to Dr Shaw there are about 50 species in the genus *Dusona* in Britain, many have narrow host ranges, but they do not appear to concentrate on a single host and most probably attack early and middle instar larvae. There are 20 specimens of



Plate J.

Dusona terebrator (Forster) (Ichneumonidae) reared from Marsh Moth *A. pallustris*.



Plate K.

Diadegma sp. (Ichneumonidae) reared from 2nd brood *Pareulype berberata* (D.&S.)

Dusona terebrator in the museum collection in Edinburgh, all determined by Hinz who was the authority on the genus, but none is reared. They come from a wide scatter of sites in England, Scotland and Wales and the flight times suggest the wasp might be bivoltine (adults in May-June and July-September).

The Marsh Moth project is part of the *Action for Threatened Moths Project* and is administered by Butterfly Conservation with funding from English Nature. I would like to thank John Walker, Site Manager, for his work in managing the nature reserve at Saltfleetby and for providing litter-piles to assist larval survey work, Gerry Haggett for background data and Klaus Horstmann and Mark Shaw for the determination of the parasitoid and for the associated information.— PAUL WARING, 1366 Lincoln Road, Werrington, Peterborough PE4 6LS. (E-mail: paul_waring@btinternet.com)

An undescribed *Diadegma* species (Hym.: Ichneumonidae) reared from both first and second generation larvae of the Barberry Carpet moth *Pareulype berberata* (D.& S.)(Lep.: Geometridae) from Wiltshire

During 2000, a parasitic wasp was reared from wild larvae of the Barberry Carpet moth *P. berberata*. This is the first report of a parasitoid from this species in Britain in many years but, because the moth is protected by law (Wildlife & Countryside Act 1981), opportunities for wild larvae to be collected for rearing in captivity are few. From the start of the English Nature conservation work for this species in 1988 until 2000, three larvae have been collected from a site in Suffolk, three from Dorset, and a total of about a dozen from three sites in Wiltshire, all for captive breeding, and none has produced parasite. In 2000, another unknown site was discovered in Wiltshire, making either seven or nine in the county, depending on the definition of a site (see Waring, 2000. Conserving the Barberry Carpet moth. *British Wildlife* 11(3): 175-182). However, this one was to be destroyed to make way for gravel extraction. The bushes were due to be lifted and replanted on a safe site early in 2001. Six larvae were beaten from some of the bushes in June 2000 and another nine at the end of August 2000. The aim was to hold them in captivity and return their progeny to assist the pupae, hopefully translocated with the soil and roots of the bushes, to maintain the population. A single wasp was produced from the batch of first generation larvae and three wasps from the second generation larvae. All are the same species of black ichneumonid wasp with yellow legs. Each had emerged as a grub from a final instar larva and had spun a cocoon by the remains of the host. All three adult wasps from the second generation were found emerged and dead when the rearing boxes (in an unheated garage) were inspected on 17 October, but had not emerged by mid September when they were previously checked. This suggests they do not pass the winter as dormant pupae or adults, but presumably as eggs or grubs within another host. The wasps and their cocoons were photographed and sent to Dr Mark Shaw (National Museum of Scotland) for identification. They

have been identified as an undescribed *Diadegma* (Plate K) species, very close to *D. armillatum* (Gravenhorst) (det. Klaus Horstmann). Dr Shaw reports that this is probably a widespread parasitoid with a broad host range. Rather similar wasps have been reared from other geometrid moths including the Double-striped Pug *Gymnoscelis rufifasciata* and the Horse Chestnut *Pachycnemia hippocastanaria*.

I thank Klaus Horstmann and Mark Shaw for the determination and background information on the parasitoid. The fieldwork was carried out as part of the English Nature Species Recovery Project for the Barberry Carpet moth.— PAUL WARING, 1366, Lincoln Road, Werrington, Peterborough PE4 6LS. (E-mail: paul_waring@btinternet.com)

The Status of Hoary Footman *Eilema caniola* (Hb.) (Lep.: Arctiidae) on Anglesey

Following the record of a single Hoary Footman *Eilema caniola* at South Stack on 23 August 2000, I suggested the possibility that the species might still be resident at this site (*Ent. Rec.* **112**: 251). To investigate this suggestion, Doug Murray arranged a field meeting of the British Entomological and Natural History Society at the site for 18 August 2001. Doug Murray, Steve Hind, Sam Thomas, John Harold and myself attended the meeting. The day was very wet, but the heavy rain subsided as darkness approached. Four m.v. Skinner traps were established around the upper car parks at the site, and the overcast conditions led to a good catch. Highlights included the Anomalous *Stilbia anomala*, a single Haworth's Minor *Celaena haworthii* and good numbers of Dark Sword-grass *Agrotis ipsilon*. At 10:30 pm, Sam found a single *E. caniola* on the outside of one of my traps. This was a somewhat odd individual, with a deformed wing. Shortly afterwards I found a second, pristine example on the grass adjacent to my second trap. *Agrotis ipsilon* is a migrant and hence we cannot completely rule out the possibility that the *E. caniola* were also migrants. However, the capture of these two specimens, together with the single individual from the same site in 2000 and the records from Snowdonia by David Brown (*Ent. Rec.* **113**: 17) add further weight to the suggestion that Hoary Footman is still resident at various sites within North Wales, and in particular at the South Stack RSPB reserve.— ADRIAN WANDER, 16 Bramhall's Park, Anderton, Northwich, Cheshire CW9 6AH.

***Hypoponera punctatissima* (Roger) (Hym.: Formicidae) re-discovered outdoors in a Northamptonshire garden**

In 1991 I reported removing a winged queen *Hypoponera punctatissima* from my beard after coming in from the garden of my house in the rural village of Hemington, Northamptonshire, (grid reference TL O91852) on 25 August 1990 (*Ent. Rec.* **103**: 97-98). At that time, although my garden compost heap was regarded as a possible source, no further specimens could be found. In the

early evening of 25 June 2001, after two consecutive hot, sunny days, a single winged queen *H. punctatissima* landed on the surface of a white garden table on the lawn at the rear of my house. Again an examination of the contents of my compost heap failed to reveal any more specimens. There would appear to be a strong likelihood that this species has maintained a population out of doors in the immediate vicinity over the past ten years.— R. COLIN WELCH, The Mathom House, Hemington, nr. Oundle, Peterborough PES 5QJ. (E-mail: robert-colin.welch@which.net)

Another Latticed Heath *Chiasmia clathrata* (L.) ab. *obsoletissima* Cockayne (Lep.: Geometridae) at Holme Dunes, Norfolk

While trapping at Holme Dunes in north Norfolk on 6 July 2001, Adrian Wander and myself took a Latticed Heath *Chiasmia clathrata* of the form ab. *obsoletissima* amongst five of the 'normal' looking individuals. This is the second time this form has been caught here; the last was on 15 June 1999 by Gary Hibberd and was described in *Atropos* 9: 83 by Gerry Haggett.

The ab. *obsoletissima* has all wings tinted yellowish with the veins being dark brown, almost black (Plate L), and on first impression is reminiscent of a Black-veined Moth *Siona lineata*!



Plate L. *Chiasmia clathrata* (L.) ab. *obsoletissima* Cockayne. Holme, Norfolk, 6 July 2001.

On the East Coast it has occurred from time to time at Gibraltar Point in Lincolnshire, from Languard in Suffolk and Wells in Norfolk.— JON CLIFTON, Kestrel Cottage, Station Road, Hindolveston, Norfolk. (E-mail: Jon.Clifton@btinternet.com).

LUNULATION SIMILARITIES IN THE GENUS *ARICIA* REICH. (LEP. : LYCAENIDAE) IN BRITAIN, SPAIN AND SWITZERLAND

BILL SMYLLIE

164 Dobcroft Road, Sheffield S11 9LH.

Introduction

THE STATUS and relationship of the Brown Argus butterfly races in Britain and other parts of Europe have caused differences in opinion for many years. Heath et al. (1984) indicated that the Brown Argus *Aricia agestis* occurs in south and central England, and the Northern Brown Argus, *Aricia artaxerxes*, in north England and Scotland. The north of England form had at one time been considered as subspecies *salmacis*, but Jarvis (1966) and Høegh-Guldberg (1966) concluded that it was merely a form of the Scottish race. The mainly univoltine colonies in North Wales, the Peak District and the Yorkshire Wolds were considered to be Northern Brown Argus.

Doubts about the status of the Peak District colonies led to comparison of their upper wing lunulation with that of bivoltine *agestis* colonies, and it was concluded that the above three univoltine areas were all *agestis* due to consistent good lunulation, while the north of England race consisted of hybrids between *agestis* and Scottish *artaxerxes*, with variable, but intermediate, lunulation. There was also interpenetration between *agestis* and *artaxerxes* (Smyllie, 1992a, 1998). Genetic tests have been in progress since 1993 and, although detailed accounts have still to be published, some information is given in the new Millennium Atlas (Asher *et al.*, 2001). This confirms that the three univoltine races mentioned above are predominantly *agestis* and that *artaxerxes* is merely a variant of the northern continental species *artaxerxes allous* (Smyllie, 1998), and not an endemic species peculiar to Scotland as some authors have maintained. The genetic jury is still out on the status of the north of England race, although a significant *artaxerxes* component is confirmed in the new Atlas, and a statement from the first researcher confirmed the presence of both *artaxerxes* and *agestis* (Janet Cameron, pers. comm., 1996). It is, however, simpler for the time being to refer to the colonies in north England and abroad as “intermediates” because of their lunulation.

During 2000, lunulation checks have been carried out on collections in Spain and Switzerland to investigate the possibility that higher altitudes in mountain areas further south correspond with poor lunulation further north, as in Scotland and Scandinavia; that lower altitudes in Spain, Switzerland and the Canaries correspond with good lunulation as in south and central England, and that sandwiched in between is a zone with variable intermediate lunulation as in north England. Data backed by statistical checks confirm that there are broad similarities. Spain contains very well lunulated, intermediate and poorly lunulated zones. Switzerland only contains intermediate and poorly lunulated zones. Possible reasons for this are discussed and a hypothesis for the history and development of the *Aricia* genus is put forward.

Material and Methods

The major source of butterflies has been museums, plus a small number of private collections. Where appropriate, data have also been collected from the field, photographs or published material (Høegh-Guldberg, 1966). The overall database contains over 4,000 specimens, and has come from 26 British museums (Smyllie, 1992a), two Spanish – The Museo Nacional de Ciencias Naturales (MNCN, Madrid) and Unidad de Zoología de la Universidad Autónoma de Madrid (UAMZ). Two private collections also provided data, those of Dr Klaus Schurian in Germany and Herr Hans-Peter Wymann in Switzerland, while Prof. Dr Fidel Fernández-Rubio's was consulted in Madrid. All records noted the number and size of upper forewing lunules (ufl), together with the locality, as a minimum. Examination was by the naked eye. A trace and upwards counted as one lunule. Spanish *morronensis* and Swiss *allous* had very poor ufl, so upper hindwing lunules were also noted. Records were subsequently aggregated into areas or colonies. Initially, data were manipulated to provide equal numbers of males and females (Smyllie, 1992a). Later, because males proved to be less well lunulated than females, and therefore provided a more sensitive indicator of change, data were generated from males only (Smyllie, 1998). In this paper the main concern is again with male upper forewing lunules (mufl) and data are presented in tabular form. High values for 5&6 mufl% in these Tables give an indication of good lunulation. The considerable importance of "phased emergence" is discussed later, and scanning electron microscope photographs of four British eggs are commented on.

Lunulation data from Britain

Data from old English counties have been grouped together in Table 1 to give different areas, which proceed from south to north through the *agestis* zone. The statistical formula $np \pm k\sqrt{npq}$ is then applied in the three right-hand columns, where n is the total and p is the proportion of the total which has five or six lunules.

From Table 1 totals, $p = 661/798 = 0.828$; q is $(1-p) = 0.172$, and k is a constant = 1.96 for 5% significance. The formula gives the boundaries within which there is a greater than 95% chance of the lunulation being due to a constant factor. The limits are calculated by adding and subtracting the $k\sqrt{npq}$ column to or from the np one, and checking to see whether the 5&6 mufl column is inside the limits. It can be seen that all colonies are inside the limits. The same principles apply to the north of England colonies in Table 2, but here $p = 120/532 = 0.2256$, therefore $q = 1-0.2256 = 0.7744$. The consistency of *agestis* is not repeated for the north of England colonies: nos. 1-5 are all out: note that 1,2 and 5 are high, while 3 and 4 are low.

Details for Scottish colonies are given in Table 3: these will be useful in further statistical tests later.

Table 1: Lunulation data from various agestis colonies, mainly British.

No.	Locality	Total	5&6 muffl	5&6 muffl%	np	$k\sqrt{(npq)}$	agestis?
1	European <i>agestis</i>	50	39	78.0	41.4	5.2	Yes
2	C'wall, Devon, S'set, Dorset	88	74	84.1	72.9	6.9	"
3	Wiltshire, Glouc'shire	58	47	81.0	48.0	5.6	"
4	Hants, IoW, Sussex, Surrey	85	69	81.2	70.4	6.8	"
5	Kent	50	42	84.0	41.4	5.2	"
6	Herts.,Essex	55	48	87.3	45.5	5.5	"
7	Berks.Bucks.Oxon.B.N.R	103	87	84.5	85.3	7.5	"
8	N'fk.Suff'k.Cambs.Hunts.P.	110	92	83.6	91.1	7.8	"
9	North Wales coast	56	48	85.7	46.4	5.5	"
10	N. Wales Eyarth Rocks	27	21	77.8	22.4	3.8	"
11	Peak district	87	71	81.6	72.1	6.9	"
12	Yorkshire Wolds	17	13	76.5	14.1	3.0	"
13	Mainzer Sand	12	10	83.3	9.9	2.6	"
	Totals	798	661	82.8			

The situation in Spain

Spain contains several mountain ranges which are isolated from one another. Associated with these is the endemic *Aricia morronensis*. Although it has been said to be endangered, records from 50 localities have been gathered, in some of which it is rather abundant. It is found in all the main mountain ranges above 1000 metres. Heights at which it occurs vary from 800 to 3,000 metres and, because it is restricted to isolated habitats, the morphology from different mountain ranges is slowly diverging. There are ten different subspecies from

Table 2: Lunulation details from north of England colonies.

No.	Locality	Total	5&6 muffl	5&6 muffl%	np	$k(\sqrt{npq})$	In/Out
1	Pickering SE88	44	18	40.9	9.93	5.43	Out
2	Perthichwareu SJ15	48	20	41.7	10.83	5.68	Out
3	Durham coast NZ44	92	6	6.5	20.76	7.86	Out
4	Durham coast NZ43	85	10	11.76	19.18	7.55	Out
5	Durham inland NZ34	29	16	55.17	6.54	4.41	Out
6	Durham inland NZ33	24	9	37.5	5.41	4.01	In
7	North Lancashire SD48	109	18	16.5	24.59	8.55	In
8	North Lancashire SD47	101	23	22.77	22.79	8.23	In
	Totals	532	120	22.56			

different localities, each with a different morphology (Munguira & Martin, 1988, 1992; Munguira et al., 1991). *Aricia cramera* occurs widely below 1000 metres over most of the Iberian peninsula, excluding the north-west tip, while *agestis* occurs less widely and mainly in the eastern half (Gómez-Bustillo et al., 1974). Distribution maps for the north of Spain (Gómez de Aizpurúa, 1977) indicate that both *cramera* and *agestis* are found frequently in the area covered, up to 130 kilometres from the north coast. The present consensus of

Table 3: Lunulation details from Scottish colonies.

No.	Locality	Total	0muf	0muf%	5&6 muf	5&6 muf%
1	North of Inverness	13	10	76.9	0	0
2	Aberdeenshire, Banff	32	16	50.0	3	9.4
3	Inverness, Nairn, Moray	39	20	42.9	2	5.1
4	Kincardine, Angus	63	35	55.6	3	4.76
5	Perthshire	117	72	61.5	2	1.71
6	Fifeshire	25	12	48.0	2	8.0
7	SE Scotland	47	15	31.9	3	6.4
8	SW Scotland	35	7	20.0	7	20.0
	Totals	371	187	50.4	22	5.93

Table 4: Male upper forewing lunules in Spanish *Aricia*

No.	Locality (Province)	CUTN	Male upper forewing lunulation (muf)						
			0	2-4	5&6	Total	0%	2-4%	5&6%
	<i>A. morronensis</i>								
1	S. de Gredos (Avila)	30TUK16	13	0	0	13	100.0	0.0	0.0
2	Abejar (Soria)	30TWM12	8	1	0	9	88.9	11.1	0.0
3	All localities	-	24	1	0	25	96.0	4.0	0.0
	<i>A. cramera</i>								
4	Fuente Joco (Tenerife)	-	0	0	11	11	0.0	0.0	100.0
5	Segura de Toro								
	(Caceres)	29SQD27	0	0	7	7	0.0	0.0	100.0
6	Casa de Campo								
	(Madrid)	30TVK37	0	2	34	36	0.0	5.6	94.4
7	All localities	-	0	3	70	73	0.0	4.1	95.9
	<i>A. montensis</i>								
8	S. de Gredos (Avila)	30TUK16	1	7	4	12	8.3	58.4	33.3
9	All localities	-	3	27	10	40	7.5	67.5	25.0

opinion among Spanish lepidopterists is that *cramera* occurs all over the Iberian peninsula together with one less well lunulated subspecies which some call *montensis* and others call *agestis*. No examples of *agestis* were seen in the Madrid collections from which data was taken. Results are presented in Table 4.

The situation in Switzerland

Results are presented in Table 5. Differing opinions were summarised Gonseth (1987). Only *A. agestis* and *A. artaxerxes allous* are considered as being resident. The following aspects are mentioned: *agestis* is bivoltine and occurs below 1200m, while *allous* is univoltine and occurs above 1200m. This is complicated by reports of *agestis* at heights of 1620m in the Wallis Alps and over 1400m in the Jura, which indicates that both subspecies (so called because they can cross-breed) can fly together. There is also a report of *allous* in the lower Jura. In another paper (Bischof 1990), distribution details are given of *artaxerxes allous* in Schanfigg, Kanton Graubünden. The colonies are double-brooded between 920 and 1300m, but single brooded above 1300m. According to Gonseth (*op. cit.*), different authors disagree about whether *allous* and *agestis* belong to the same or different Taxa (Beuret, 1960; Kames, 1976; Schurian, 1994) and other aspects include occasional hybrids (Ebert & Rennwald, 1991). Gonseth therefore gives just one distribution map covering both *agestis* and *allous*. Geographical locations of the Swiss localities are given in Fig. 1.

Table 5: Male upper forewing lunules in Swiss *Aricia*

No.	Locality	Altitude	Swiss Grid	Male upper forewing lunulation (muff)						
		müM	Reference	0	2-4	5&6	Total	0%	2-4%	5&6%
A. <i>artaxerxes allous</i>										
1	Val Bever (GR)	1760	785,155	12	0	0	12	100.0	0.0	0.0
2	Haldenstein (GR)	600	755,190/5	17	2	0	19	89.5	10.5	0.0
3	La Luette (WA)	950	600,110	7	3	0	10	70.0	30.0	0.0
4	Airolo (TI)	13-1800	690,150	6	7	0	13	46.2	53.8	0.0
5	Kandertal (BE)	10-1900	615,140/5	4	5	0	9	44.4	55.6	0.0
6	Mitholz (BE)	1000	615,150	6	2	0	8	75.0	25.0	0.0
7	All localities		-	61	21	0	82	74.4	25.6	0.0
A. " <i>agestis</i> "										
8	Orvin (BE)	7-800	580,220	2	5	3	10	20.0	50.0	30.0
9	Chiasso (TI)	400	720,75/80	2	9	5	16	12.5	56.4	31.2
10	Crémines le Cras	720-780	600/5,235	0	5	3	8	0	62.5	37.5
11	All localities		-	4	19	11	34	11.1	58.3	30.6



Fig. 1. Swiss localities in Table 5: *allous*; + intermediates.

Statistical overview

Table 6 collects data from Britain and other parts of Europe to enable a check to be made on whether the varying numbers of males with 5&6 ufl at different sites could be due to chance. From this Table, the overall proportion of males with 5&6 ufl (p) is $925/2122 = 0.4359$. It is possible to check statistically using $np \pm k\sqrt{npq}$ to determine if these figures are within the 5% significance limits, using the format in Table 1. Data from Scottish *artaxerxes*, north of England intermediates, and central/south England *agestis* are used because of the large data bank, and results are given in Table 7. It can be seen that none of the three British zones is within the limits necessary for the variation to be considered only a matter of chance. Spanish *morronensis* and Swiss *allous* both have no 5&6 mufl, while Spanish *cramera* is better lunulated than *agestis*, so these races will be further out than the British ones.

Table 6. Male upper forewing lunules covering parts of Europe.

No.	Locality	5&6mufl	0-4mufl	Total
1	Scotland <i>artaxerxes</i>	22	349	371
2	N England intermediates	120	412	532
3	C&S England <i>agestis</i>	661	137	798
4	Spain	80	58	138
5	Switzerland	11	105	116
6	Scandinavia	31	136	167
	Totals	925	1197	2122

A further statistical test follows in Table 8 to see if there is any similarity between the intermediates in the three countries, again using $np \pm k\sqrt{npq}$ (npq) with reference to the combined north of England figures in Table 6 where $p = 120/532 = 0.2256$. It can be seen that the intermediates from all three countries are statistically similar.

Table 7. Statistical check on British colonies.

No.	Locality	Total	5&6 mufi	5&6 mufi%	np	$k\sqrt{npq}$	In/Out
1	Scotland <i>artaxerxes</i>	371	22	5.93	161.72	18.72	Out
2	N England intermediates	532	120	22.56	231.90	22.42	Out
3	C&S England <i>agestis</i>	798	661	82.83	347.85	27.46	Out

A check on Scottish areas using 0 mufi where $p = 187/371 = 0.504$ follows in Table 9. Numbers 5, 7 and 8 are outside the 5% significance limits, indicating both some variation and a better penetration by intermediates from the south. The Swiss figures from Table 10 ($p = 0.744$) have a distinctly higher average than Scotland; therefore the possibility of a stable zone with a 0 mufi content of say 50-60% is unlikely.

Table 8. Statistical comparison of intermediates.

No.	Locality	Total	5&6 mufi	5&6 mufi%	np	$k\sqrt{npq}$	In/Out
1	N England intermediates	532	120	22.56	120.0	18.9	In
2	Spanish intermediates	40	10	25.0	9.02	5.18	In
3	Swiss intermediates	34	11	32.35	7.67	4.78	In

For Table 10, data from all Swiss *allous* specimens give $p = 61/82 = 0.744$. Results indicate that Swiss *allous* colonies are not all within the 5% significance limits: the variation is therefore due to variable penetration from “*agestis*”.

Table 9: Statistical checks on Scottish *artaxerxes*.

No.	Locality	Total	0mufi	0mufi%	np	$k\sqrt{npq}$	In/Out
1	North of Inverness	13	10	76.9	6.55	3.53	In
2	Aberdeenshire, Banff	32	16	50.0	16.13	8.00	In
3	Inverness, Nairn, Moray	39	20	51.3	19.66	6.12	In
4	Kincardine, Angus	63	35	55.6	31.75	7.78	In
5	Perthshire	117	72	61.5	58.97	10.60	Out
6	Fifeshire	25	12	48.0	12.6	4.9	In
7	SE Scotland	47	15	31.9	23.69	6.72	Out
8	SW Scotland	35	7	20.0	17.64	5.80	Out
	Totals	371	187	50.4			

Table 10: Statistical checks on Swiss *allous*.

No.	Locality	Total	0muf	0muf%	np	$k\sqrt{(npq)}$	In/Out
1	Val Bever (GR)	12	12	100.0	8.93	2.96	Out
2	Haldenstein (GR)	19	17	89.5	14.14	3.73	In
3	La Lurette (WA)	10	7	70.0	7.44	2.70	In
4	Airolo (TI)	13	6	46.2	9.67	3.08	Out
5	Kandertal (BE)	9	4	44.4	6.70	2.57	Out
6	Mitholz (BE)	8	6	75.0	5.95	2.42	In
	Totals	82	61	74.4			

Table 11: Statistical checks on Spanish *cramera*.

No.	Locality	Total	6muf	6muf%	np	$k\sqrt{(npq)}$	In/Out
1	Fuente Joco (Tenerife)	11	11	100.0	6.63	3.18	Out
2	Casa de Campo (Madrid)	36	22	61.1	21.71	5.75	In
	Totals	73	44	60.3			

In Table 11 covering Spain, since *cramera* is the best lunulated of all the *Aricia*, data have been restricted to 6 muf. Colonies with 100% 6 muf exist in Spain – records obtained simply do not have enough males from any one area to note them in the Table, but also there is no doubt that significant areas have lower lunulation due to variable penetration via *montensis*. In the Table, $p = 44/73 = 0.603$.

Discussion

At its western limit the genus *Aricia* stretches from the Canaries, latitude 28°N, through Morocco, the Iberian peninsula, France, Benelux, Britain and Denmark to north Norway at latitude 69.5°N. Therefore, Britain (excluding the Orkney and Shetland Islands) at 50-58°N, lies roughly in the middle. It so happens that it contains a significant proportion, though by no means all, of the variation encountered in *Aricia*. Any overview must take account of the fact that males in the Canaries all have 6 ufl, while males in Scandinavia north of 60°N have no records of either 5 or 6 ufl. As a result of the data from Spain and Switzerland, specimens from the mountain ranges in these countries are seen to be broadly similar to those north of 60°N. It is simplest to split the discussion into a consideration of the three countries, starting with Britain and further north, followed by Switzerland, Spain and the Canaries, with a subsequent general summary.

Britain and further north

The pertinent question, “does the approach of quantified upper forewing lunulation give an accurate indication of one aspect of the genetic make-up of *Aricia*?” has to be asked and an answer attempted. Favourable evidence is

mounting – two major forecasts (Smyllie, 1992a, 1998), have been backed by genetic studies. Additionally, the comment that a colony in north Germany might prove to be similar to the one at Pickering in Britain (Smyllie, 1995) was verified at Inseln Rügen thanks to the interest and expertise of Dr Klaus Schurian (Smyllie, 1998).

The Brown Argus, *agestis*, extends from the south coast of England up to and including the Yorkshire Wolds in the east, latitude 50 to 54°N. It can be seen from Table 1 that *agestis* is statistically consistent as far as mufl is concerned. The variation which does occur has always been within the 5% statistical limits and, since no account has been taken of variation in foodplant, whether the specimens were first or second brood, and whether the British climate was good, bad or indifferent in the various years that samples were obtained, it has to be concluded that none of these, or indeed any other factors, have had an appreciable statistical effect. Specimens from continental Europe, admittedly in small numbers, have been taken from several different collections and their figure is also within the allowed variation. So also has the colony at Mainzer Sand near Frankfurt-am-Main in central Germany at Lat. 50°N.

White discal scales occur in British *agestis* in varying numbers: approximately one male in three and two females in three are affected on the south coast. The earlier comment (Asher et al., 2001) that genetic research has confirmed the relationship between Scottish *artaxerxes* and Scandinavian *allous* indicates that either can provide a northern element in *agestis*. An experiment carried out by Dr Schurian, not the only one carried out by various authors, linked the formation of white scales to a cool temperature early in the pupal stage (Smyllie, 1998). So, *artaxerxes* is centred on Scotland, and has a characteristic of white discal spots which allow a decreasing presence of white scales to be tracked down to the south coast of England (Smyllie, 1997). At the same time, the ocelli (black centres in the underwing spots) can hardly be seen in Scotland, but increase significantly as far away as the English south coast. Several “blue” butterflies have white rings round black centres in their underside spots and the origins of these are likely to be similar to *Aricia*. The white discal scales in *agestis* failed to make it beyond the English south coast prior to the Channel being formed. This is important, because it means that the formation of *artaxerxes* from *allous* is very likely to be an event which has occurred since the last ice-age. On mainland Europe there was no similar obstacle to the southward penetration of *allous*. While there is evidence of white discal scales in any English or Welsh *agestis* colony, including the very occasional white spot not only in southern England but also in southern Scandinavia (Higgins et al., 1970), there is no such presence in northern France. It is probable that there are minor variations in the composition of *agestis* without the overall lunulation stability being appreciably affected, and *agestis* is notable in that, once away from the extremities, it is the only *Aricia* which has consistent lunulation over considerable distances.

One interesting feature of *Aricia* in northern England is that significant changes in lunulation can occur over short distances. The male lunulation near

Pickering (OS grid square SE 88), at the point of change to “intermediates”, is about half of that in the nearest Yorkshire Wolds *agestis* colony (grid square SE 86) only 15 km distant. The considerable variation in lunulation between north of England colonies can be seen in Table 2. The largest difference occurs between coastal and inland Durham colonies, which are only about 15 km apart at their nearest points. In North Wales, these distances may be much less. The status of the north of England colonies was investigated mathematically to find out if subspecies *salmacis* could occur, or if *artaxerxes* and *agestis* could co-exist at the same site, or neither of these – therefore pointing to hybrids (Smyllie, 1998). The first two were disproved, leaving hybrids. The possibility of these differences being due to random migration, or inclement weather killing a proportion of the population at a critical stage, or some other factor, remains to be clarified. This variability in north England, particularly in some adjacent colonies, coupled with the consistency in lunulation of *agestis*, and “phased emergence” (see later), must be borne in mind when considering any general theories concerning *Aricia*.

Turning now to Scotland and *artaxerxes*, the average lunulation is much lower than the north of England, and yet south-west Scotland (where most of the colonies are on or near the Solway Firth coastline – very little further north than the Durham coast) has better lunulation than any Durham coast colony. The variation in lunulation continues through Scotland, but with an average of 5.9% males having 5&6ufl compared with the north of England's 22.56%, it is simplest to view the situation as a combination of reducing lunulation and related variation as one goes further north. This effect is mirrored in Denmark, southern Norway and Sweden where the latitudes are similar to northern England and Scotland. North of latitude 60°N, the position appears to have settled down with no 5&6ufl occurring in 36 males from Norway and Sweden. In the most northerly colony in north Norway, near Lyngenfjord, no males were seen with any upper forewing lunules although hind-wing lunules were present (Høegh-Guldberg, 1966). In this respect the situation is similar to the higher altitudes in Spain and Switzerland.

Spain

Table 4 gives details of very poorly lunulated *morronensis* which, as the only Spanish *Aricia* with this lunulation (no males with 5&6 ufl in 25 and only one with 2-4 ufl), must be the equivalent of *allous* in Switzerland, even though there are morphological differences between the two races. Because of the poor mufl, upper hindwing lunules in males were also recorded for both Spain and Switzerland. Most specimens had three, four or five hindwing lunules but there were some from both countries without any lunules on the upper wings (var. *unicolor*):

Spain – 3 out of 25 males (12%) and 1 out of 17 females

Switzerland – 13 out of 82 males (15.8%) and one out of 11 females

From the twenty-five males seen, Spanish *morronensis* has less penetration by *cramera* when compared with the parallel situation in Switzerland, but most males still have significant lunulation on the hind-wings. More checks would be needed to see if there was greater variation in some of the mountain regions.

The statistical exercise in Table 8 has showed that *montensis* is similar to the north of England “intermediates” and Swiss “*agestis*”. No examples of *agestis* were seen, but Spain is a big country and in view of its stability in England it will be surprising if *agestis* does not occur where the change from *cramera* to *montensis* takes place over relatively large distances.

In the Canaries and at several, though not all, Spanish localities, *cramera* males can have 100% with 6 ufl. However, even at Fuente Joco (Canaries) the relative sizes of lunules in individual males vary. At Casa de Campo, near Madrid, not all males have 6 ufl: 34 out of 36 have 5&6 ufl, and only 22 have 6 ufl. These aspects point to a variable 0 lunule component and this must have come from *morronensis* via *montensis* and, where appropriate, *agestis*. There is doubt about the ability of *cramera* to cross-breed nowadays, but the situation is not clear-cut and one conclusion is that *cramera* is “*in statu nascendi*” – it has not yet achieved full species status (Schurian, 1995). This statement can be extended to all other *Aricia* races. All the evidence points to interpenetration between lunulation extremes and this will hinder any drive to distinct species. Another aspect of *cramera* is that var. *luxurians* is found widely in colonies distinctly north of Spain. One incident out of many is recorded for a female on the Durham coast with lunules that would make an *agestis* female envious (Jarvis, 1969). It is usually females which are stated to be “overlunulated”.

It could be that development towards separate species is faster in Spain, or it may be that more data from different mountain regions will throw up more variation. The former possibility would account for the more obvious differences in morphology exhibited by *morronensis*.

Switzerland

Swiss *allous* localities range from 600-1900m above sea level and one of the least well lunulated is at Haldenstein at only 600m, the lowest altitude recorded. Moreover, this is quite near the Schannfig area where Bischof has noted bivoltine emergence with the probability of the colonies there being at least in part “intermediate”. This is one example of variation in lunulation similar to Britain. Examination of Table 5 shows that there is wide variation in the 0 mufl content (44.4-100%). A statistical check in Table 10 similar to that carried out in Table 1, but using 0 mufl, shows that three out of the six mentioned are outside the 5% significance zone, N° 1 high, and N°s 4 & 5 low. This indicates that there is variable penetration into *allous* via Swiss “*agestis*”. The situation is roughly similar to Scotland although the sequence regarding increasing penetration at the 0 mufl end is Spain, Switzerland, Scotland.

Regarding "*agestis*", it has already been stated that the colonies here are in the intermediate category. Although the data for *agestis* comes largely from Britain, there is backup from limited European examples together with the statistical consistency. Moreover, the Swiss data fit in statistically with the north of England colonies. Following the pattern in England it is suggested that the Swiss intermediates contain *allous* and *agestis*. It would appear that *agestis* does not occur in Switzerland.

Phased Emergence

This refers to a field observation that better lunulated *Aricia* male butterflies emerge first, to be followed through the flight period by less well lunulated specimens. Because females are better lunulated than males, the effect is less noticeable, particularly in *agestis* colonies. I became aware of the phenomenon by chance: a visit on 20 May 1989 to Watlington Hill in Oxfordshire to note the early stages of *agestis* there ended with my leaving my cameras behind. Luckily they were picked up by the police. I collected them nine days later, and revisited the site. On my earlier visit all eleven males seen had either 5 or 6 ufl. Out of nine males, seven has 5 or 6 ufl, one had 4 ufl and the other had 3 ufl (Plate M). This was not proof, but merited further investigation since I felt that I should have seen any 3 or 4 mufl specimens during the previous quite lengthy visit. During 1992, I visited Coombs Dale south of Sheffield in the Peak District, at weekly intervals, carrying out a type of transect walk to fit in with the terrain and objective of counting lunules (Smyllie, 1992b). Between 31 May and 13 June (the first three visits), only 6 mufl were seen. On 21 June, 5 mufl specimens appeared with 4 mufl following on 28th. The only example of 3 mufl appeared on 5 July. The decrease is not entirely smooth and having become aware of the phenomenon it was possible to pick up literature references. First, the occurrence of a univoltine portion in bivoltine *agestis* at Royston, Hertfordshire (Jarvis, 1969); secondly details of specimens from Sandhammaren, southern Sweden, showing the decrease in mufl (again not entirely smooth) during the first brood, rising abruptly at the start of the second (Høegh-Guldberg, 1966). This is an intermediate colony (Smyllie, 1995), so a significant portion will be single-brooded, although the climate is good enough for a distinct partial second brood.

The phenomenon has been described in some detail because it is considered important. If well lunulated and poorly lunulated races were to coincide and hybridise, what would happen as far as their normal expectation of bivoltine and univoltine emergence is concerned? At present the climate in northern England is, normally, not good enough for bivoltine emergence, but it is in southern Sweden. Here, *agestis*-rich butterflies will be bivoltine, *artaxerxes*-rich will be univoltine, and, somewhere in between, diapause will take place at a variable point depending on the weather actually experienced and the precise constitution, presumably genetic, of the larva. Diapause will control the

point from where development takes place the following spring, and even then the *agestis*-rich portion will continue to develop more quickly. So one characteristic of *Aricia* colonies will be that their flight periods will be more spread out than other butterflies with a less complex history. Another aspect is that species with similarly extended flight periods are likely to have a similar degree of complexity. Yet another point to be noted is that in these days of increasingly sophisticated equipment and techniques it will still be possible to pick up important information from straightforward field observation. Phased emergence supports the hypothesis that *Aricia* intermediates are hybrids between the well and poorly lunulated races on either side. This is particularly relevant for example in Spain where present morphological differences between *cramera* and *morronensis* may cast doubt on either *agestis* or *montensis* having arisen from the first two. The missing link is that we do not know what the situation was when this event is thought to have happened. DNA analysis should be able to clear up the situation.

Eggs

T. Lloyd Newman considered that the earliest stages of a butterfly were more likely than the adult insect to give an indication of its origins (Acworth, 1947). Scanning electron microscope photographs of four eggs are shown (Plate N, Figs. 1-4). The pictures indicate some differences. For example, the Perthshire egg (Fig. 1) has higher reticulation than that from Kettlewell (Fig. 2), which is higher than the others. In all the eggs, however, the areas bounded by the white ribbing vary both in size and shape. If their origins were to have been quite different there would surely have been much greater differences in the features mentioned. Thus, although it is very likely that individual eggs from the same site will differ, it nevertheless seems reasonable to postulate that they have come from a common ancestor.

Genetic analysis and quantified lunulation

Assuming that there is further correlation between quantified lunulation data and DNA analysis, it would seem prudent, as far as parts of Europe are concerned, to gather information via museums as a first step and subsequently concentrate on areas of particular interest via DNA analysis. This should help to save time and expense on what so far has been a relatively slow process. Provided the specimens are available it is much easier to build up considerable numbers for any area via collections and this is a positive aid in providing extra focus through statistical analysis.

Summary

The information provided by quantified upper forewing lunulation has indicated parallels between races in Britain, Spain and Switzerland for the *Aricia* genus. Spain has the most complete range, with Britain and

Switzerland having parts. The evidence indicates very poor and very good lunulation at the extremities with some penetration by the other fraction everywhere, and a relatively unstable intermediate zone in-between. As lunulation increases from the poor end there is no positive indication of a stable zone. Towards the very good end *agestis* does form a stable zone. The following hypotheses are made regarding the history of *Aricia* with the comment that the data will not change whether the hypotheses are eventually agreed to be correct or otherwise:

- The genus *Aricia* arose from a common ancestor (general similarity of eggs from different British regions).
- Gradually two races developed, one which was well lunulated – lower altitudes and further south; the other which was poorly lunulated – higher altitudes and/or further north.
- They did not intermingle before having progressed to 0 lunules and 12 lunules respectively on the upper wings (if this was not the case, where did var. *unicolor*, with no upper wing lunulation, and var. *luxurians*, with 12 full upper wing lunules – particularly in females - come from?).
- This did not happen overnight – suggested time-scale tens of thousands of years. This postulates very small year-by-year increments in lunulation and ground colour pigmentation, either up or down, depending on the climate experienced. It is interesting to speculate on the possibility of “*Aricia* dendrology” being available at some future date either via genetic or morphological checks. Some event or events subsequently caused these races to overlap: the suggested cause is the last ice-age, followed by a climatic optimum which started at the end of the Younger Dryas event about 11,500 years ago and then lasted for over 2000 years, when the temperature was on average higher than it is now (Lamb & Sington, 1998). Since this event, the picture presented via lunulation has not been significantly blurred. In spite of any morphological differences and possible mating difficulties today, the races could still have coincided and subsequently crossbred about 10,000 years ago.
- Recent global warming has allowed northwards expansion of 15 British species including *agestis* (Fox, 2001). The Brown Argus has been tracked through Lincolnshire and into Yorkshire in the last 10 years or so, reaching West Yorkshire in 2000, a distance of over 100 kilometres. So far there has not been any detectable movement from the univoltine *agestis* colonies or from the north of England intermediates. So there is relative movement between *agestis* and other colonies. Given continuing warmth, within a few years the migrants will impinge on the static colonies and provide a parallel to what has happened previously.

- The main overlap area may well have been relatively restricted initially. It could then have been followed by 'gene flow' where wanderers from the original overlap colonies coincide over long periods of time with nearby colonies, and gradually spread lunulation (or the lack of it), over considerable distances so that eventually there is some interpenetration everywhere.

Acknowledgements

I am very much indebted to several lepidopterists, mainly in Spain and Switzerland, without whose help this data could not have been collected. In Spain to Dr Miguel L. Munguira for providing references and information about collections of Spanish *Aricia* in Madrid and access to the UAMZ collection; to Prof Dr Fidel Fernández-Rubio for showing me his extensive collection; to Carolina Martin and her colleagues for access to the MNCN collection; also to Teresa Farino for providing information on *Aricia* in the north of Spain. Concerning Switzerland, to Dr Klaus Schurian in Germany and, in particular, to Herr David Jutzeler in Switzerland, for information on Swiss lepidopterists and references; to Herr Albin Bischof for providing data on *Aricia* in Schanfigg (GR), and to Herr Hans-Peter Wymann for providing access to his large collection. The authors of the *Millennium Atlas* have very kindly allowed me, via Richard Fox, to refer to comments on genetic research in the text prior to its publication. Regarding the statistical backup, I am also indebted to the significant help I have received from Prof Chris Cannings of the Molecular Medicine Department of Sheffield University.

References

- Acworth, B., 1947. *Butterfly miracles and mysteries*. Eyre & Spottiswoode.
- Asher, J., Warren, M., Fox, R., Harding, P., Jeffcoate, G., and Jeffcoate, S., 2001. *The Millennium Atlas of Butterflies in Britain and Ireland*. Oxford University Press.
- Beuret, H., 1960. Versuch einer taxonomischen Deutung der schweizerischen *agestis*-Formen (Lep. Lycaenidae). *Mitt. entomol. Ges. Basel, N.F.* **10** (1): 1-14, (2): 15-38, (3) 39-75, (4): 77-96.
- Bischof, A., 1990. Eine zweite generation von *Aricia artaxerxes allous* (Geyer, 1836) im Schanfigg, Kanton Graubünden, Schweiz (Lepidoptera: Lycaenidae). *Opusc. zool. flumin.* **48**: 1-8.
- Ebert, G., and Rennwald, E. 1991. *Die Schmetterlinge Baden- Württembergs*, vol. 2: Tagfalter II. Ulmer, 333-349.
- Fox, R. 2001. The Millennium Atlas of Butterflies in Britain and Ireland. *Butterfly Conservation News*. 76: 5.
- Gómez de Aizpurúa, C., 1977. *Atlas provisional de Lepidópteros del Norte de España. Cartografía de los Invertebrados Europeos. Programa UTM*. Tomo I. 221 mapas. Diputación Foral de Alava. Vitoria.
- Gómez-Bustillo, M.R., and Fernández-Rubio, F., 1974: *Mariposas de la Península Ibérica. Ropaloceros II*. - Public. Ministerio de Agricultura, ICONA, 100.

- Gonseth, Y., 1987. *Verbreitungs-atlas der Tagfalter der Schweiz*. Centre Suisse de cartographie de la faune, 197-198.
- Heath, J., Pollard, E., and Thomas, J. A., 1984. *Atlas of Butterflies in Britain and Ireland*. Viking.
- Higgins, L.G., and Riley, N.D., 1970. *A Field Guide to the Butterflies of Britain and Europe*. Collins.
- Høegh-Guldberg, O., 1966. North European groups of *Aricia allous* G.-Hb. Their variability and relation to *A. agestis* Schiff. *Natura Jutlandica* **13**.
- Jarvis, F. V. L., 1966. The genus *Aricia* (Lep. Rhopalocera) in Britain. – *Proc. S. Lond. ent. nat. Hist. Soc.* 1966: 37-60.
- , 1969. A biological study of *Aricia artaxerxes* ssp. *salmacis* (Stephens). – *Proc. Br. ent. nat. Hist. Soc.* 1969.: 107-117.
- Kames, P., 1976. Die Aufklärung des Differenzierungsgrades und der Phylogenese der beiden *Aricia*-arten *agestis* (Den. & Schiff.) und *allous* (G.-HB.) mit Hilfe von Eizuchten und Kreuzungsversuchen (Lep. Lycaenidae). – *Mitt. Entomol. Ges. Basel*: **26** (1):7-13 (Teil 1), **26** (2):29-64 (Teil 2).
- Lamb, S., and Sington, D., 1998. *Earth Story*. BBC Books.
- Munguira, M.L., and Martin, J., 1988. Variabilidad morfológica y biológica de *Aricia morronensis* (RIBBE), especie endemica de la Peninsula Ibérica (Lepidoptera: Lycaenidae). *Ecologia* **2**: 343-358.
- , 1992. Biology and distribution of the endangered lycaenid *Aricia morronensis* (RIBBE). – *Proc. V. Congr. Eur. Lepid., Budapest: Nota lepid.* (Suppl. 3): 11-16.
- Munguira, M.L., Martin, J., and Rey, J.M., 1991. Use of UTM maps to detect endangered lycaenid species in the Iberian peninsula. *Nota lepid.* (Suppl. 2): 45-55.
- Schurian, K.G., 1994. *Polyommatus (Aricia) agestis* (Denis & Schiffermüller), 1775 und *P. (A) artaxerxes* Fabricius, 1792 in Mitteleuropa. *Atalanta*, **25** (1/2): 225-228.
- , 1995. Die biology von *Polyommatus (Aricia) cramera* (ESCHSCHOLTZ) von den Kanarischen Inseln (Lepidoptera: Lycaenidae). *Nachr. entomol. Ver. Apollo*, N.F. **16** (1): 27-37.
- Smyllie, W. J., 1992a. The Brown Argus butterfly in Britain – a range of *Aricia* hybrids. *Entomologist* **111**: 27-37.
- , 1992b. The Brown Argus butterfly in Britain with particular reference to the Peak district. *Sorby Record* **29**: 2-17, pls.
- , 1995. The Brown Argus butterfly in N. W. Europe. – *Entomologist's Rec. J. Var.* **107**: 15-23.
- , 1997. Similarities between the Xerxes blue *Glaucopsyche lygdamus xerxes*, northern brown argus *Aricia artaxerxes artaxerxes* and common blue *Polyommatus icarus* (Lepidoptera: Lycaenidae) with further comments on the genus *Aricia*. *Entomologist* **116**: 245-253.
- , (1998). Similarities between British and north-west European *Aricia* “subspecies” (Lepidoptera: Lycaenidae). *Nachr. entomol. Ver. Apollo*, N.F. **19** (1): 69-88.

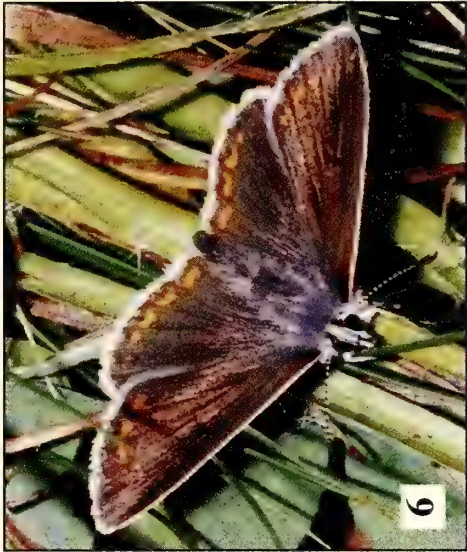


Plate M. Brown Argus *Aricia agestis* at Coombs Dale, Peak District 1992.

(Photographs all copyright © Bill Smyllie)

1. ♂ 31.5.92, 6 ufl 2. ♀ 6.6.92, 6 large ufl 3. ♂ 21.6.92, 6 ufl 4. ♂ 21.6.92, 5 ufl 5. ♂ 5.7.92, 4 ufl 6. ♂ 5.7.92, 3 ufl

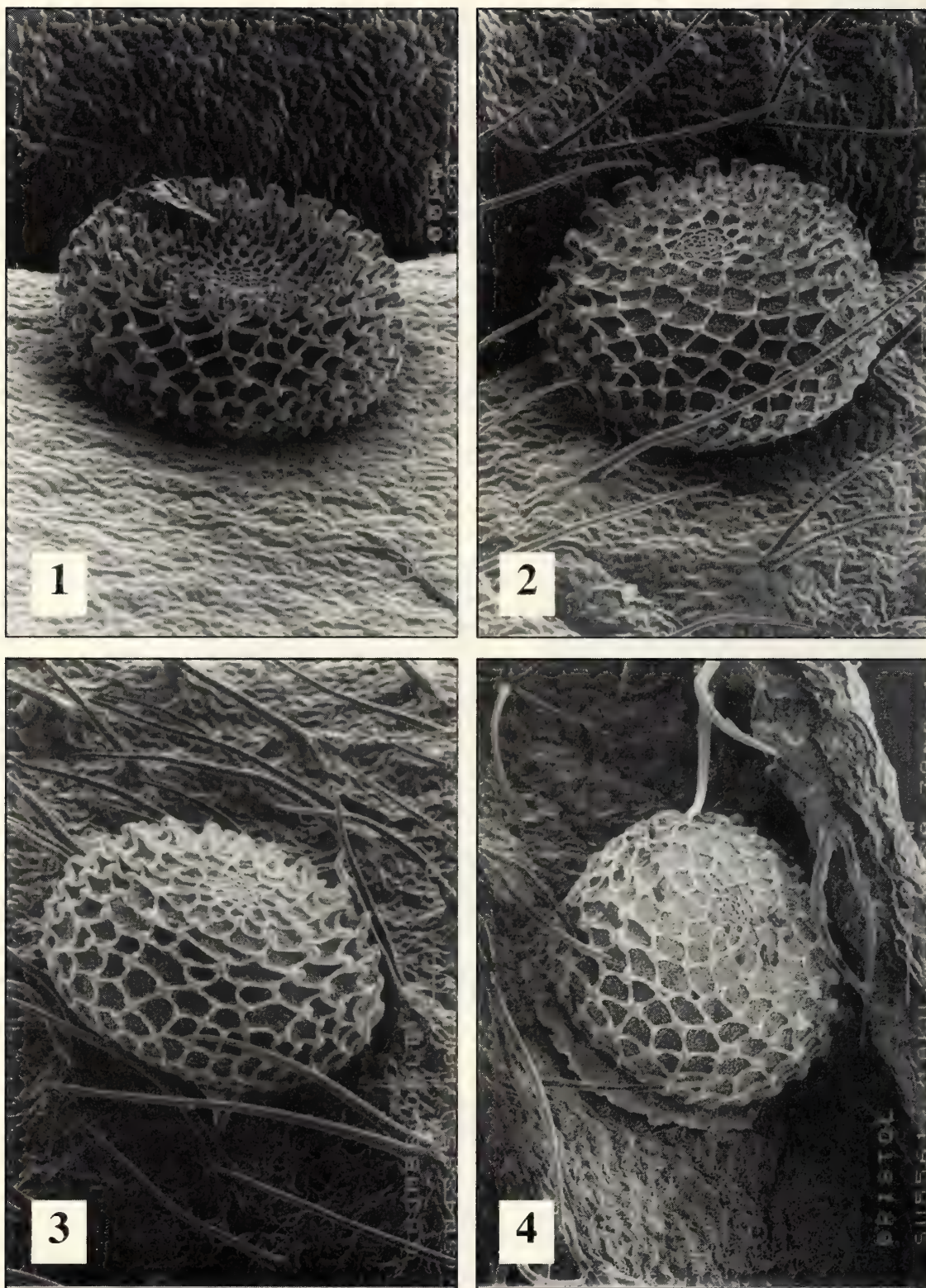


Plate N: Scanning electron micrographs of *Aricia* eggs.

- 1 Perthshire – *artaxerxes*
- 2 Kettlewell, north Yorkshire – intermediate
- 3 Coombs Dale, Peak district– univoltine *agestis*
- 4 Portishead, Somerset – bivoltine *agestis*

A NEW SPECIES OF PTEROPHORIDAE (LEPIDOPTERA) FROM SRI LANKA: *HELLINSIA NUWARA* SP. N.

VASILY N. KOVTUNOVICH

*Department of Entomology, Biological Faculty, Moscow State University,
Vorob'evy Gory, Moscow, Russia. (E-mail: agdistis@mtu-net.ru)*

A NEW SPECIES of plume-moth belonging to the genus *Hellinsia* has been found amongst specimens collected in Sri Lanka by A. Sochivko, P. Udovichenko, and V.S. Murzin in 1999. This species is close to *Hellinsia lienigiana* Zeller, 1852* and *Hellinsia kuwayamai* Matsumura, 1931, and may be allocated to the *lienigiana* group of species.

Hellinsia nuwara sp. n.

Description

(Plate O). Head covered with ashy grey scales, not forming a conical tuft on the frons. Labial palpi short, not more than 1.5 times as long as eye diameter; the second segment not pressed to the frons and is visible from above. Antennae thin, grey brown, with short hairs. Thorax and tegulae ochre grey.

Wingspan 19 mm. Forewings grey yellowish-white, dissected for more than one third. Costal margin in forewings with one distinct long patch of dark scales and two poorly-distinct patches. The colour pattern at the base of the fork is developed as a patch of dark scales. Fringes are little darker than the wings. Hind wings pale grey, with fringes being of same colour as in the forewings. Underside dark brown; in the hind wings, the second lobe with dark brown-black scales in a double row, the costal row is longer.

Hind legs ochreous-grey, with admixture of dark scales, especially around spur bases. The inner spurs are longer than the outer ones.

Male genitalia (Fig. 1). Valvae asymmetrical. The left valva is larger, its lower margin is semi-rounded; the projection of the left harpa is straight. In the right valva, the sacculus is two times narrower than the valva itself and has a soft harpa, which is fused with the valva. The harpa is broadened in its upper part and has free blunt portion only at the apex. The uncus is hooked and pointed. The anellus is divided from its mid-length into two asymmetrical branches; the right branch is broader and larger than the left one. The aedeagus is developed as a weakly curved tube, being not tapered apically.

The female is unknown.

Biology

Unknown.

Distribution

Sri Lanka.

Holotype

♂, with two labels: "Sri Lanka, Nuwara Elya, 2300 m, 20.01.1999, leg. A. Sotchivko", "ex. coll. Kovtunovich V.N. VK 40X", and red coloured label

* *Ovendenia lienigianus* (Zell.) of the recent British check-list.



Plate O. *Hellinsia nuwara* sp. n., holotype male, Sri Lanka, Nuwara Elya.



Fig. 1. *Hellinsia nuwara* sp. n., male genitalia, holotype, Sri Lanka, Nuwara Elya:
a – ventral aspect; b – aedeagus.

“Holotypus *Hellinsia nuwara* Kovt., sp. n., ♂, Sri Lanka, Nuwara Elya”, having “Coll. Zool. Inst., Petersburg, gen. praep. N° 16738 ♂ det. V.Kovtunovich” on its reverse side. Deposited in the collection of the Zoological Institute, St Petersburg, Russia.

Discussion

The new species may be allocated to the *lienigiana* group of species and is very close to *H. lienigiana* (Zeller, 1852). However, the projection of the left harpa is straight in the new species, whereas it has a semi-rounded excavation in *H. lienigiana* (see Zagulyaev, 1986; Arenberger, 1995). *H. kuwayamai* also has a soft harpa on its right valve, but it is less structured than in the new species.

Acknowledgements

My gratitude is expressed to Mr A. Sochivko (Moscow) for providing the valuable material and to Dr M. Mostovski (Cambridge University, England) for his help in course of preparation of the manuscript. I also thank the two anonymous referees who scrutinised this paper prior to publication.

References

- Arenberger, E., 1995. *Microlepidoptera Palaearctica. Volume 9. Pterophoridae Teil 1: Pterophorinae, Ochytotricinae, Agdistinae*. Wien.
- Zagulyaev, A.K., 1986. In: Kuznetsov, V.I. et al. (eds), *Lepidoptera. Handbook for the Identification of Insects of the European Part of the USSR (Opredelitel' nasekomykh Evropeiskoi chasti SSSR)*: Vol. IV Part 3. Leningrad.

SUBSCRIBER NOTICE

National Gelechiid Lepidoptera Recording Scheme

The Gelechiid Lepidoptera Recording Scheme is the second scheme covering a part of the microlepidoptera to be established during the current year. The families (with Bradley 2000 checklist numbers in brackets) of the Gelechioidea covered by the scheme are the Gelechiidae (723-840), Autostichidae (870-871a), Blastobasidae (873-876), Batrachedridae (878-879a), Momphidae (880-893), Cosmopterigidae (894-910), and Scythrididae (911-920b). It is expected that these families will be included within the pages of the two parts of volume 4 of *Moths and Butterflies of Great Britain and Ireland* (Harley Books), publication of which is imminent; this is bound to increase interest in the group and facilitate identification, which has been regarded, traditionally, as “difficult”.

If you are interested in any of these groups, or have records, please contact myself with your details and I will place you on the mailing list. Those of you who don't record this group at the minute, but who are nevertheless interested, will also be kept informed by e-mail if you contact me with your details.— GRAHAM IRVING, Flat 95, 64 Curle Street, Glasgow G14 0ST. (E-mail: gelechiidae.nglrs@virgin.net)

Another British location for the ant lion *Euroleon nostras* (Geoffroy) (Neur.: Myrmeleontidae)

A female *Euroleon nostras* was captured in an m.v. trap by Anthony Blunden at Branscombe, South Devon, on 28 July 2001 (O. S. grid reference SY 213881). The insect was placed in a refrigerator in order to calm it down for photography, but was dead when next examined. I was pleased to confirm Tony's identification from this specimen, which now reposes in my own collection.

This species was added to the British fauna by Mendel (*Ent. Rec.* **108**: 1-5) and is confined, as a breeding species, to the Sandlings of East Suffolk. It has been the subject of intensive study, funded by the English Nature, RSPB and myself (Plant, 1997. Investigations into the distribution, status and ecology of the ant-lion *Euroleon nostras* (Geoffroy in Fourcroy, 1785) (Neuroptera: Myrmeleontidae) in England during 1997. Unpublished report in Library of English Nature, Peterborough, and an edited version in Plant, 1998. *Suffolk Natural History* **34**: 69-79). Since then, there have been occasional sightings of adults on the south coast of Britain, at Dungeness, East Kent, on 2 September 1998 and at St Leonard's, East Sussex, on 6 September 1998 (Plant & Walker, 1999. *Ent. Rec.* **111**: 95-96). This appears to be the first record from the south-west of Britain.— COLIN W. PLANT, 14 West Road, Bishops Stortford, Hertfordshire CM23 3QP.

***Oncomera femorata* (Fabr.) (Col: Oedemeridae) new to Hertfordshire**

Two males and one female of this distinctive, large beetle were attracted to m.v. lights set at Hexton Chalk Pit, Hertfordshire on the night of 21 – 22 July 2001, and independently identified by myself and by Marcel Ashby. Trevor James, the Hertfordshire Coleoptera Recorder, subsequently informed me that this is the first occurrence of the species in the Hertfordshire Vice County.

Hyman and Parsons (1992. *A review of the scarce and threatened Coleoptera of Great Britain, Part 1*. UK Nature Conservation, number 3. JNCC) listed this species in Nationally Notable category B (known or expected from between 30 and 100 ten-kilometre squares of the O.S. National Grid system). They note adults in March, April, June and from September to November, so the present record in July extends the emergence through the summer. The larval biology is quite unknown, though the adult is reportedly associated with woodland and hedgerows. The present site, a Wildlife Trust nature reserve leased from the landowner, is essentially a scrub-invaded, chalk grassland site adjoining mixed, broad-leaved woodland.

I am grateful to the Herts & Middlesex Wildlife Trust, Patrick Cooper (the landowner) and the reserve warden Nigel Agar for their help and friendly co-operation in organising Herts Moth Group recording meetings at Hexton Chalk Pit.— COLIN W. PLANT, 14 West Road, Bishops Stortford, Hertfordshire CM23 3QP.

THE PSOCOPTERA OF THE WALLINGTON ESTATE – A CONTRIBUTION TO RECORDING THE NORTHUMBERLAND FAUNA

KEITH N.A. ALEXANDER

National Trust, 33 Sheep Street, Cirencester, Glos GL7 1RQ

(E-mail: keithalexander@smtp.ntrust.org.uk)

KERSLAKE (1998) has identified the need for more information to be gathered on a number of groups of organisms in Northumberland. These include the Psocoptera – book lice or bark flies. Coincidentally the National Trust's Biological Survey Team spent three weeks on the Wallington Estate in Northumberland during August 1999 and a special effort was made to record the arboreal species of this very neglected group of insects. A total of seventeen species were noted – probably well over half of the native species that may be expected in the county as a whole.

Arboreal bark flies have two main habits: i) foliage species, which feed on debris and the microflora of the surface of leaves; and ii) bark frequenters which feed on algae and fungal spores. It is very much the latter group that are well represented at Wallington.

The estate is drained by a series of water courses, mostly lined by native trees and shrubs in variable densities and open to livestock grazing – effectively a wood-pasture habitat – from the Fallowlees Burn in the north to the River Wansbeck in the south. These linear wood pastures have been linked by shelterbelts established in the 18th century and which have developed locally into interesting strips of old wood-pasture type habitat in their own right. Thus there is a network of trees, including old open-grown individuals with well-lit trunks, all within the matrix of generally intensively farmed land. There appear to be only a few small relict stands of ancient woodland in the conventional sense of dense stands of trees providing heavily shaded conditions in the summer months. Air quality is good and the trees with the better-lit trunks have good cover of epiphytes – thereby providing good conditions for invertebrates of tree trunks.

The species encountered are as follows:

<i>Caecilius flavidus</i> (Stephens)	<i>Philotarsus picicornis</i> (Fabricius)
<i>Caecilius burmeisteri</i> Brauer	<i>Psococerastis gibbosa</i> (Sulzer)
<i>Graphopsocus cruciatus</i> (L.)	<i>Metylophorus nebulosus</i> (Stephens)
<i>Ectopsocus petersi</i> Smithers	<i>Trichadenotecnum fasciatum</i> (F.)
<i>Peripsocus phaeopterus</i> (Stephens)	<i>Trichadenotecnum sexpunctatum</i> (L.)
<i>Peripsocus alboguttatus</i> (Dalman)	<i>Trichadenotecnum variegatum</i> (Latreille)
<i>Elipsocus abdominalis</i> Reuter	<i>Amphigerontia contaminata</i> (Stephens)
<i>Elipsocus hyalinus</i> (Stephens)	<i>Amphigerontia bifasciata</i> (Latreille)
<i>Elipsocus pumilus</i> (Hagen)	

Some of these merit further comment:

Ectopsocus petersi

Almost certainly widely distributed and very common throughout Britain on tree foliage and in leaf litter. It was first distinguished from the equally common *E. briggsi*

McLachlan only in 1977 (Smithers, 1978) and British entomologists have been slow to distinguish the two species locally. All of the *Ectopsocus* retained for examination from Wallington are *E. petersi*:

- Catcherside Green, on mature ash trees along old land, NY 991876, 19.viii.1999;
- Catcherside North Plantation, swept beneath mature oak, alder, birch and aspen, NY 995889, 12.viii.1999;
- Gallows Hill Farm, from old hawthorns along Harwood Burn, NZ 028894, 5.viii.1999;
- Newbiggin Farm, swept in a mature ash-oak wood which has been planted up with conifers, NZ 028869, 5.viii.1999;
- Raff Shield, swept in birch alder wood pasture, NZ 004913, 12.viii.1999.
- Fairley Farm – off alders along Hart Burn, NZ 019880, 19.viii.1999.

It appears to be the commoner of the two in Norfolk (Withers, 1997) and the Lothians (Saville, 1999) but is much less common in Gloucestershire (Alexander, in press) – perhaps it is more frequent in the east of Britain than in the west?

Peripsocus alboguttatus

New (1974) mentions that this is especially found on heaths in southern England. It was found only in an area of sheltered bushy heather at Gallows Hill Wood, NZ 023902, 9.viii.1999; none were found in bushy heather on open moorland elsewhere on the estate. This species has only recently been noted in Scotland (Saville, 1999) and appears to be rare in the north.

Psococerastis gibbosa

Found locally on many kinds of tree, especially in southern and central England. Alexander (*in press*) mentions that in the Cotswolds it is perhaps characteristic of ancient woodlands. Only noted in two woods at Wallington: Newbiggin Farm, swept in a mature ash-oak wood which has been planted up with conifers, NZ 028869, 5.viii.1999; and Rothley Lakes Nature Reserve, swept beneath birches in marshy woodland, NZ 040903, 10.viii.1999. Both of these woods have a few species suggestive of ancient woodland.

Metlyphorus nebulosus

Widespread nationally, but local. Apparently confined in Gloucestershire to the Forest of Dean and a few ancient woodlands in the Cotswolds (Alexander, in press). The two Wallington sites probably include ancient woodland:

- Delf Plantation, swept in oak, ash, hazel woodland, NZ 027889, 9.viii.1999;
- Rothley Lake Reserve, swept in mature oak and ash woodland, NZ 040903, 10.viii.1999.

***Trichadenotecnum* spp.**

These are widespread nationally, but very local and not usually common.

- *Trichadenotecnum fasciatum*: from trunk of dead sycamore in open pasture, Cambo Pasture, NZ 025858, 5.viii.1999.
- *Trichadenotecnum sexpunctatum* and *T. variegatum*: Broom House and Elf Hills, on old ash trees along field boundary between the two farms, NZ 020853, 13.viii.1999.

References

- Alexander, K. N. A., In press. The Bark Flies & Book Lice (Psocoptera) of Gloucestershire. *The Gloucestershire Naturalist* **15**.
 Kerslake, L., 1998. Red Data Book for Northumberland, *Trans.Nat.Hist.Soc.Northumb.*, **58** (2).

- Saville, R., 1999. The barklice (Insecta: Psocoptera) of the Lothians (Scotland). *Glasgow Naturalist* **23**: 50-54.
- Smithers, C. N., 1978. A new species and new records of Psocoptera (Insecta) from Ireland. *Ir. Nat. J.*, **19** (5): 141-148.
- Withers, P., 1997. The free-living bark-lice (Insecta; Psocoptera) of Norfolk. *Trans. Norfolk Norwich Nat. Soc.*, **31**: 87-94.

The continuing spread of *Nephus quadrimaculatus* (Herbst) (Col.: Coccinellidae)

Nephus quadrimaculatus has long been considered a rare species in Britain, and was listed by Hyman and Parsons (1992. *A review of the scarce and threatened Coleoptera of Great Britain, Part 1*. UK Nature Conservation, number 3 JNCC) as Vulnerable (Red Data Book category 2). Recent years have seen a marked increase in reports of this ladybird. Traditionally believed to be largely confined to Suffolk (VCs 25 and 26), it was found in West Kent (VC 16) during the 1990s, and Hawkins (2000. *Ladybirds of Surrey*. Surrey Wildlife Trust) describes and maps extensive records for VC 17.

On 12 March 2000, I found a single example among non-flowering ivy growing over old fences and regenerating English elm in the High Street at Trumpington near Cambridge (VC 29). Colston, Gerrard and Parslow (1997 *Cambridgeshire's Red Data Book*. Cambs. Wildlife Trust) indicates that the species has been recorded in the county recently, but gives no further details. At the time of the above capture, I noted that a new supermarket was under construction at the site, and within a few weeks the *N. quadrimaculatus* habitat had been removed as part of these operations. Beating nearby flowering growth of ivy on a subsequent occasion did not yield any further individuals. Near Watford, in the south-west of Hertfordshire (VC 20), beating ivy in the churchyard at Abbots Langley on 2 April 2001 produced two examples. This is the second record for the county, following one at Royston in the north-east in the previous year (A. Halstead per T. James, pers. comm.).

These observations hint at a widespread distribution in and around the above counties of a species which should present little difficulty in identification. The excellent survey by Hawkins (*op. cit.*) includes a colour plate of the insect, but the key in Majerus and Kearns (1989. *Ladybirds*. Richmond Publishing), although accurate in all other particulars, erroneously gives the colour of the (red) elytral spots as yellow, a misconception arising from the examination of faded museum specimens, as acknowledged in Majerus' later monograph (1994. *Ladybirds*. HarperCollins).— C.M. EVERETT, The Lodge, Kytes Drive, Watford, Hertfordshire WD25 9NZ.

***Scraptia fuscula* Müller and *S. testacea* Allen (Col.: Scaptiidae) in Buckinghamshire**

On 20 July 1998, two female *Scraptia* were collected at Ankerwycke, Buckinghamshire (grid reference TQ 002729: these have been determined by Mr A. A. Allen as examples of *S. fuscula* and *S. testacea*. Although the

occurrence of the two beetles at Ankerwycke appears to represent a new county record for each, their presence here is not wholly surprising as the site is located only a few kilometres away from Windsor Great Park where both have been recorded previously. The example of *fuscula* was obtained by beating the lower branches of a large parkland oak, and the *testacea* by beating the young re-growth of a nearby old lime which had had the upper section of the main trunk snapped off, exposing the heart rot. It is also of interest to note that Prof. J. A. Owen (pers. comm.) has reared *testacea* from the heart rot of lime at Windsor.

Both beetles are given *Red Data Book* status in Hyman & Parsons (1992. *A review of the scarce and threatened Coleoptera of Great Britain*, UK Nature Conservation 3. JNCC): *testacea* (RDB Rare category) is the more widespread with a few records spanning much of England; whilst nearly all records of *fuscula* (RDB Endangered category) are from the Windsor area. Allen (*Ent. Rec.* **113**: 1-2) reports the recent discovery of *fuscula* in East Gloucestershire by P. Whitehead, and casts doubt on an historic record from Surrey.

Ankerwycke is a parkland site on the north side of the Thames acquired by the National Trust in 1998. It supports a number of large old parkland trees including oak, field maple, horse chestnut, sweet chestnut and lime, there is also the renowned Ankerwycke yew in the grounds of an 11th century priory – a tree believed to be in excess of 2000 years old. At the time of my visit only a few other common saproxylic beetles were recorded as very little decaying timber was readily accessible for study – a consequence of decaying timber being removed by the previous owners. Even so, one other species of note, the brown tree ant *Lasius brunneus* was common in the old trees over much of the property. In view of the close proximity to Windsor and the occurrence of the two *Scryptia* it is hoped that other scarce saproxylic invertebrates will also be present at the Ankerwycke site – future management of the property will incorporate a more sympathetic approach towards maintaining the old trees and their saproxylic habitats.

I am grateful Mr A. A. Allen and Prof. J. A. Owen for providing relevant literature, details of field observations, and their assistance in determining the specimens. – A. P. FOSTER, The National Trust, 33 Sheep Street, Cirencester, Gloucestershire GL7 1RQ.

Sandhill Rustic *Luperina nickerlii* (Freyer) *gueneei* (Doubl.) (Lep.: Noctuidae): New to Denbighshire (VC 50)

On 11 August 2001, we attended a public moth event in Denbighshire organised for National Moth Night. The event was held at a newly created local natural reserve consisting of a remnant of the once extensive dune system that used to be present along the North Wales coast. The conditions for trapping were poor with a very strong southerly wind blowing across the site. Despite the conditions, two traps were established in sheltered locations. Fortunately, the wind eased as darkness approached and a few interesting

insects were attracted to light. These included Archer's Dart *Agrotis vestigialis* and many Latticed Heath *Semiothisa clathrata*. Around midnight, we organised a search along the proto-dunes at the seaward edge of the reserve by torchlight. This resulted in Alan Wagstaff locating a single, pristine Sandhill Rustic *Luperina nickerlii gueneei*.

On checking with the county recorder and with Adrian Spalding and David Green, it became apparent that this represents the first record of this *Red Data Book* category 2 species for VC 50 and, hence, it also establishes a new site for the insect. The status of the site is under discussion with Countryside Council for Wales and the local Council who own it, in order to arrange protection for the insects. Consequently, the site details are necessarily withheld for the time being.— SAM THOMAS, ALAN WAGSTAFF AND ADRIAN WANDER, 16 Bramhall's Park, Anderton, Northwich, Cheshire CW9 6AH.

Hazards of butterfly collecting: We are going to shoot you, Sir — Benin, Nigeria, 1969

In July 1969 I did one of the most stupid things I have ever done. I don't do that kind of thing anymore. I was staying with my parents in Nigeria (my father was director of UNICEF). I had the chance of hitching a ride to Benin City. Now, what happens in Nigeria is that the number of species increases dramatically from west to east. So you have perhaps 700 species in the Lagos area, 900 in the Niger Delta area, and you have 1,100 species in the East.

Benin was very close to the front line of the so-called Biafra conflict and one should not really go there – but the butterflies called and one was young and optimistic. I lodged with a delightful UNICEF Indian family and I had brought their quota of Indian spices sent through the diplomatic pouch; wonderful Indian food for my four day stay in Benin.

During the first two days I had splendid collecting – lots of things not found in the Lagos area. And then back for a convivial Indian dinner. But on the third day things went awry. My host dropped me at a small patch of forest about three kilometres from Benin Airport and a major army base. It was a really rich locality, but after three hours I buckled down to the discipline of photographing butterflies. I did not have a macro lens, so I was using extension tubes. It was a cool and intermittently cloudy day, just fine for photography. I got some very nice images.

Then an army Land Rover drew up. A corporal and a private came out, both with submachine guns. The corporal was very drunk, the private driver somewhat less so; they had obviously been out here to drink too much palm wine during office hours. "You are a spy" – I tried to explain that this was not possible; my camera could only focus at short distance. The driver agreed that the camera was for short distance, but in much of Africa cameras are anyway deeply suspect. I tried to show the corporal, but his alcoholic stupor could not support the effort. But he did see my boots. They were some very nice khaki canvas boots, bought at the Bata shoeshop in Lagos. "You killed

Nigerian soldier to get these boots. You are mercenary". There was a big mercenary scare about. The driver seemed to think that things might be getting out of hand: "Do you have the receipt from Bata", he asked. No such luck.

"You killed Nigerian soldier. We kill you", the corporal said, and put me in the back of the Land Rover, where he sat opposite to me, clicking on and off the safety of his submachine gun. "We will shoot you as spy". The Nigerian Army actually did not normally do this kind of thing, but the guy was quite drunk and really hyped. The next fifteen minutes were among the most unpleasant of my life, with the guy across clicking his safety on and off and wanting to execute me.

We entered the military compound. The guards did not ask about me. The car accelerated: "We will shoot you!". And then – CRASH! We hit another Land Rover. A captain emerged and started to berate the driver. Then he saw me: "What the hell are you doing here". I told him that this was a question I would very much like to discuss.

He took me to the officers' mess and began an interrogation; after ten minutes he ordered two beers, which I took as a very good sign. It did not take the captain long to realize that I was not a mercenary or a spy: "Give me your boots", he said. In my position, one does not argue with such a suggestion, so off they went – perhaps to the forensic lab. I went off on a patter about the butterflies of Nigeria and those of Benin in particular. Pretty soon this captain knew more about Nigerian butterflies than the rest of the Nigerian Army combined. We had a very civilized chat about other things as well, including the very negative attitude that much of the world had to the Federal Republic of Nigeria compared to the amount of sympathy lavished on Colonel Ojukwu's Biafra - misguided from the start, but then taken past political reality to provoke famine in Biafra, using the threat of genocide as motivation. In the event there was NO genocide.

Ten minutes later my boots came back, painted tennis white: "You will have no further problems", the Captain said, "my car will take you wherever you want to go". It was a splendid piece of diplomacy. He admitted no responsibility, but he obviously agreed that his people had been wrong. His handling of the situation was masterly. I hope he eventually made general rank, but he told me his name was classified, so I have been unable to check.

The fifteen minutes in the Land Rover were the most scary minutes of my life. I really did think I would be executed. The collision with the Captain's car was the ultimate relief. But in truth, I should never have been in Benin at the time.— TORBEN B. LARSEN, Bangladesh, World Bank, 1818 H. Street N. W., Washington D. C., 20433, USA
(E-mail: Torbenlarsen@compuserve.com).

Book Reviews

Habitat management for invertebrates by **Peter Kirby**. RSPB, 2001. 150 pp., including 111 illustrations of invertebrate species, 74 diagrams and 6 back-and-white habitat photographs. A4, perfect bound, ISBN 0 901930 30 0. £17.45 plus postage (UK £2.60, Europe £5, rest of world £8). Available from Peter Smith, Editorial Coordinator, RSPB, The Lodge, Sandy, Bedfordshire, SG19 2DL. Money with order – invoices cannot be issued.

Peter Kirby's excellent "practical handbook" book was first published in 1992 and the need for it to be reprinted and re-issued during 2001 reflects both its popularity and its usefulness. The work draws on Peter's vast experience as a field entomologist and, having been privileged to share a museum laboratory with him at some point in the dim and distant past, I can vouch for his entomological credentials, which are second to none! The book is divided into manageable sections covering the major lowland wildlife habitats of woodland, grassland, lowland heath, freshwater wetlands and coastal habitats. It is attractively illustrated by many of Peter's own drawings. There can not be a single reader of this journal, nor a single British entomologist, amateur or professional, who can afford to be without this handbook, whether it be for personal edification or as a resource of information when trying to impress upon the local wildlife trust the need to include invertebrates in their reserves management plans. Buy it!

Keeping spiders, insects and other land invertebrates in captivity by **Frances Murphy**. Revised edition. Fitzgerald Publishing, 2000. 96 pp., A5, paperback. ISBN 0 952408 32 5. Price not stated. Available from the publishers at 89 Ermine Road, Ladywell, London SE13 7JJ.

The late Frances Murphy was undoubtedly one of Britain's foremost authorities on spiders and this reprint of her booklet, first published by Bartholomew in 1980, is bound to sell well. The various chapters cover ants, caterpillars, preying mantis, stick insects, locusts, tarantulas and other spiders, scorpions, other arachnids, millipedes, centipedes and snails. A brief introduction to the species in each group and tips on keeping and feeding them are illustrated by the artwork of Denise Wilson. It is written for the beginner, making no assumptions of prior knowledge, and is likely to be invaluable to younger people staring to take an interest in entomology as well as to schoolteachers and others.

Maggots, murder and men – memoirs and reflections of a forensic entomologist by **Zakaria Erzinçlioğlu**. Harley Books, 2000. 256 pp., 232 x 150 mm. Paperback, ISBN 0 946589 65 8. £13.95. Available from Harley Books at Martins, Great Horkesley, Colchester, Essex CO6 4AH.

I had heard of "Dr Zak" for many years before finally hearing him lecture – it was well worth the wait. Now, one of the world's leading authorities on blowflies has committed to paper his vast and fascinating experienced as a forensic entomologist. Again – it was well worth the wait. Murder, or at least the importance of forensic entomology in the solving of it, occupies a fair few of the pages in this book, and there are some familiar cases, which many readers will recall from the press or television news. But there is much more, and always written in a manner that is amusing yet which at once conveys to the reader that this author truly knows what he is writing about. There is the account of the man with lobsters up his nose! Then there is the tracing of the origin of a consignment of cannabis to a precise region of Burma as a result of identifying insects

in with the leaves, overlaying their world distribution and looking for the point where all maps coincided. I suspect, however, that the author would be grateful for some emphasis here on his final chapter, in which he has a bit of a swipe at the present status (or should I say lack of status), of forensic entomology in Britain and puts the case for its development – funded by the state but, like the judiciary theoretically is, independent of it. This is an easy-to-read, fun book with a serious message and well worth every penny of the price.

Essential Entomology: an Order-by-Order Introduction by George McGavin. Oxford University Press, 2001. 318 pp., 245 x 170 mm., paperback. ISBN 0 198500 02 5. £18.99.

When I was at school, the standard text in biology was “Grove and Newell”. I think its title was *Animal Biology*, but having now lost my battered copy am unable to check. That work was, as I am sure many readers will remember, a journey through the animal kingdom Phylum by Phylum, Order by Order, Family by Family. George McGavin’s new book is in a similar vein – though entirely restricted to the Class Insecta, much better-written and rather more comprehensive and up-to-date. Introductory chapters cover evolution and biology – somehow managing to achieve this comfortably in just 40 pages. Basic taxonomy follows in the second section, including a brief identification guide to the various Orders and a phylogenetic tree showing how they all relate to each other. The third section is the meat of the work and is a review of each of the Orders of insects; the book finishes with a chapter on fieldwork, including a short Glossary and a Bibliography.

If any of our readers are in any way responsible for selecting the standard text books used by schools or colleges then they should take a careful look at this tome. And if you are one of those people who often wonder if there is life beyond the Lepidoptera, this is a book you should have on your shelf!

An atlas of the distribution of the butterflies in Bulgaria by Stanislav P. Abadjiev. Zoocartographia Balcanica, volume 1. Pensoft Publishers, 2001. 336 pp., 216 distribution maps. 240 x 170 mm., hardbound. ISBN 9 546421 36 7. In English. US\$ 35. Available from the publishers at Acad. G. Bonchev Street, Bl. 6., 1113 Sofia, Bulgaria or via <http://www.pensoft.net>.

This modern inventory of the Bulgarian butterfly fauna incorporates, and presents in a consistent form, all known published data, and field records between 1863 and 2000 available to the author. This scholarly work of reference lists in detail every record of every species and presents a distribution map based on the UTM grid system.

It provides an interesting contrast to the new *Millennium Atlas* of British butterflies, to be reviewed shortly. The briefest of introductions leads almost immediately into the species accounts. A simple opening statement (e.g., “Rare in lowland places of SW and E Bulgaria” under the heading of *Carchorodus orientalis* Reverdin) leads straight in to the complete list of records and the distribution map. There are no glossy photographs (this is not an identification guide), and the maps are printed black on white.

Seven species (*Pyrgus cirsii*, *Archon apollinus*, *Leptidea morsei*, *Colias chrysotheme*, *Lycaena thetis*, *Plebejus orbitulus* and *Polyommatus eros*) are formally excluded from the Bulgarian butterfly fauna by this book, either because the records are incorrect or because they cannot be supported by a voucher specimen. The remaining 216 species are all mapped. The coverage map indicates a recording bias in favour of the south-west region of the country, towards Macedonia and Greece, and though there is patchy coverage of the whole country, eastern areas away from the Black Sea coast are relatively poorly-known.

British butterfly enthusiasts may be dismayed to learn that a complete list of all records of all 216 species of butterfly recorded in Bulgaria since 1863 can be fitted into

336 pages of a book. Certainly if that task was attempted for the records of British butterflies, rather more pages may be required in spite of the far lower number of species. However, it is worth pointing out that there is no network of amateur naturalists in Bulgaria (or most other eastern European countries for that matter). What little wildlife recording is carried out at all in Bulgaria is performed professionally and, in the case of butterflies, just about single-handedly by Dr Abadjiev. As the author explains, distribution atlases of flora and fauna are quite unheard of in Bulgaria; this work on butterflies, started in 1993, is the first and he is to be congratulated for breaking new ground.

As world distributions of butterflies change, knowledge of the present situation is likely to become crucial in the interpretation of events; some of these events may well affect British populations of butterflies. Thus, a work on the butterflies of a far away eastern European country is of rather more relevance than one may consider initially. In any event, the instigation of proper wildlife distribution recording in Bulgaria leading, inevitably, to the provision of information of value in butterfly conservation, is an action that one feels we might all be usefully supporting. The relatively low price of the book is an added incentive and I look forward to seeing the others in the series.

The Geometrid Moths of Europe, Volume 1 by Axel Hausmann. Apollo Books, 2001. 282 pp., 8 colour plates, text figures in colour and black-and-white. Distribution maps for species. Hardback, 240 x 170 mm, ISBN 87 88757 35 8. 490 DKK exclusive of postage, but with 10% discount if ordered directly from Apollo Books at Kirkeby Sand 19, DK-5771 Stenstrup, Denmark. Note that Apollo will accept payment made by a cheque drawn on a UK bank account. There are approximately 10 DKK to the pound Sterling.

Of all the families of larger moths in Europe, the Geometridae (with over 900 European species), is surely the most in need of a comprehensive guide. Quite simply, there has never been one – at least there has never been one that is complete and of high quality. Now, at last, Apollo has provided us with just such a work. The family will be completed in six volumes, and the series is intended for both amateur and professional lepidopterists alike, to facilitate identification, summarise current information, critically assess taxonomic status and to initiate cooperation for continuous updating.

Volume 1 covers the subfamilies Archiearinae, Orthostixinae, Desmobathrinae, Alsophilinae and Geometrinae. This includes relatively few (42) species, especially amongst those represented on the British list, though the first volume is inevitably taken up in part with the various introductory necessities. “Europe” includes Iceland and the Mediterranean islands, but excludes Cyprus and North Africa. In the east the Ural Mountains are included. Some extra-limital species are included in the checklist, though not covered in the text or illustrations, as they may have been overlooked in Europe or else may sooner or later become a part of its fauna. The introductory section is both extensive and comprehensive and well worth reading. The colour plates are excellent, with all species reproduced photographically at natural size in clear, uncluttered plates with excellent colour reproduction. Several examples of each species are depicted in order to include as many variations as possible. The text is thorough yet to the point, and is accompanied where necessary by photographic illustrations and line drawings to illustrate the key features in separating species which may be confused with each other. Distribution maps are presented for each species, combining actual localities (shown as black dots) with hypothetical resident distribution (shown as grey shading around the dots). The male and female genitalia are drawn for all species (something sadly lacking in standard British macro moth texts). Each species is numbered from 1 to 42 and the number accompanies text, colour plate, genitalia diagram and all other comments, allowing speedy movement from one section of the book to another whilst avoiding the need to constantly refer to page numbers. A checklist of species in volume 1 is presented.

There is little to criticise. Hausmann's attention to detail is excellent and errors seem to be largely those of omission rather than of fact. Some of the theoretical distributions may need to be taken with a small pinch of salt, but they nevertheless depict a general pattern which is likely to be correct. Although North Africa is stated to be specifically excluded from the definition of Europe, some species with a decidedly circum-Mediterranean distribution (e.g., *Eucrostis indigenata* (Vill.)), are indeed mapped for that part of the world. This is fine, in that it shows the physical nature of that species' distribution, but it leaves me wondering if the absence from North Africa of other species that extend right to the very south of Europe is real or not (e.g., *Thetidea smaragdaria* (Fabr.)). It is a great pity that in what is the first and only truly comprehensive treatment of the European Geometridae that the opportunity has not been taken to include colour photographs and descriptions of the larvae; perhaps a volume 7 might be produced?

In keeping with the exceptionally high standard consistently maintained by Apollo Books, Axel Hausmann has presented us with the first volume in a series that is justified a place on the bookshelf of every single British lepidopterist. Indeed, this may be the only work on the Geometridae that a British lepidopterist is likely to need for a good many years. Although no dates are given for the publication of parts 2 to 6, the past performance of Apollo Books suggests that the series will not take very many years to complete – perhaps even before any major work of reference on the family is generated by a British publishing house.

The Microlepidoptera of Wiltshire by **Stephen Palmer**. Published by the author, 2001. 234 pp., 250 x 175 mm, softbound. ISBN 0 954057 60 0. £17.95 (inclusive of UK postage and packaging) from S. M. Palmer, 137 Lightfoot Lane, Fulwood, Preston, Lancashire PR4 0AH (E-mail: Palmer01@genie.co.uk).

The production of a bound book on the microlepidoptera of a county is surely something of a daunting task. Marvel then at the fact that the author did not arrive in Wiltshire until moving from Aberdeenshire in 1983 and left the county to live and work in Lancashire in 1993. Although he admits to making return visits since then, he has, nevertheless, learned micros, studied them in Wiltshire **and** written them up in a remarkably short period of time! So far he scores a perfect ten!

The book lists and discusses all of the microlepidoptera known to have been recorded in Wiltshire (vice counties 7 and 8). Erroneous records are listed where these have appeared in print elsewhere. For each species the span of years between the first known and last known record is given. Status is presented separately under each vice county heading and the number of ten-kilometre squares in each from which the species has been recorded is given. Larval foodplants noted are those recorded in Wiltshire – not lazily copied from standard texts, as some authors seem to do. Earliest and latest dates for imagines are given where data is available. After the index, a chart is presented indicating the precise status of each species within each ten-kilometre grid square in the two vice counties.

Of course, in a work of such complexity there are bound to be a few minor hiccups though an "Addenda" slip takes care of most of these. The use of italic type has evidently been systematically avoided – which upsets my editorial eye – and there are one or two areas where the odd poorly constructed sentence bears witness to the absence of external editorial control.

This is a splendid venture, reasonably priced and very well-presented – well worth the cover price. Perhaps, since it is now almost ten years since Steve went to live in Lancashire, we might soon see a similar tome on that county?

Book Review

<i>Habitat management for invertebrates</i> by Peter Kirby	237
<i>Keeping spiders, insects and other land invertebrates in captivity</i> by Frances Murphy .	237
<i>Maggots, murder and men – memoirs and reflections of a forensic entomologist</i> by Zakaria Erzinçlioğlu	237-238
<i>Essential entomology: an Order-by-Order introduction</i> by George McGavin	238
<i>An atlas of the distribution of the butterflies in Bulgaria</i> by Stanislav P. Abadjiev	238-239
<i>The geometrid moths of Europe, volume 1</i> by Axel Hausmann	239-240
<i>The microlepidoptera of Wiltshire</i> by Stephen Palmer	240

Diary Dates

AES ANNUAL EXHIBITION

Kempton Park, 6 October 2001

BENHS EXHIBITION

Imperial College, 10 November 2001

DIPTERISTS DAY

Natural History Museum, 24 November 2001

Entomologist's Monthly Magazine

Caters for articles on all orders of insects and terrestrial arthropods, specialising in the British fauna and groups other than Lepidoptera. Published March, July and November (4 months per issue)

Annual subscription UK and Europe £33 (\$72), USA and Rest of World £36 (\$79).

Entomologist's Gazette

An illustrated quarterly, devoted to Palaearctic entomology. It contains articles and notes on the biology, ecology, distribution, taxonomy and systematics of all orders of insects, with a bias towards Lepidoptera. Caters for both the professional and amateur entomologist. Published January, April, July and October.

Annual subscription UK and Europe £29 (\$64), USA and Rest of World £33 (\$72).

The Moths and Butterflies of Cornwall and the Isles of Scilly

by F.H.N. Smith (County Species Recorder)

The systematic list gives details of localities, dates and provenance for over 1500 species, also noting the status currently assigned by English Nature to the nationally uncommon or endangered species which occur in Cornwall. Listed are species gained since the Victoria County History, 1906, and those not since recorded. 480 pages including 152 colour illustrations. **Hardback £44 + P&P £3.**

Handbook of Palaearctic Macrolepidoptera

VOLUME 1 Sesiidae – Clearwing Moths

by K. Špatenka, O. Gorbunov, Z. Laštůvka, I. Toševski and Y. Arita

Synonymic lists, descriptions section, full data on male and female genitalia, bionomics and habitat and distribution maps. Most species illustrated by superb watercolour paintings by Starý, Holzinger and Gregor. Published October 1999. **Price £120 + P&P: UK £5, Overseas £10.**

Payments by cheque or Giro Transfer to account no. 467 6912.

*For further details
please write to:*

**GEM PUBLISHING COMPANY
Brightwood, Brightwell,
Wallingford, Oxon OX10 0QD**



THE ENTOMOLOGIST'S RECORD

AND JOURNAL OF VARIATION

<http://members.netscapeonline.co.uk/colinwplant/entrechome.html>

Contents

Grazing and cutting as conservation management tools – the need for a cautious approach, with some examples of rare moths which have been adversely affected. <i>Paul Waring</i>	193-200
Lunulation similarities in the genus <i>Aricia</i> Reich. (Lep.: Lycaenidae) in Britain, Spain and Switzerland. <i>Bill Smyllie</i>	Plates M & N 209-226
A new species of Pterophoridae (Lepidoptera) from Sri Lanka: <i>Hellinsia nuwara</i> sp. n. <i>Vasily N. Kovtunovich</i>	Plate O 227-229
The Psocoptera of the Wallington Estate – a contribution to recording the Northumberland fauna. <i>Keith N. A. Alexander</i>	231-233

Notes

Orange-tip <i>Anthocharis cardamines</i> (L.) (Lep.: Pieridae) recorded from <i>Brassica rapa</i> . <i>Jamie P. Sutherland</i>	201-201
Voltinism of Ruby Tiger <i>Phragmatobia fuliginosa</i> (L.) (Lep.: Arctiidae) and other macro-moths in the Watford district, Hertfordshire. <i>C. M. Everett</i>	201-202
More on the changing voltinism of Hertfordshire's moths. <i>Colin W. Plant</i>	202-203
Notes on possible overwintering Red Admirals <i>Vanessa atalanta</i> (L.) (Lep.: Nymphalidae) in Cambridge. <i>C. M. Everett</i>	203
Parasitoid wasp <i>Dusona terebrator</i> (Forster) (Hym.: Ichneumonidae: Campopleginae) reared from larva of Marsh Moth <i>Athetis palustris</i> (Hb.) in Lincolnshire. <i>Paul Waring</i>	Plate J 204-206
An undescribed <i>Diadegma</i> species (Hym.: Ichneumonidae) reared from both first and second generation larvae of the Barberry Carpet moth <i>Pareulype berberata</i> (D.& S.) (Lep.: Geometridae) from Wiltshire. <i>Paul Waring</i>	Plate K 206-207
The status of Hoary Footman <i>Eilema caniola</i> (Hb.) (Lep.: Arctiidae) on Anglesey. <i>Adrian Wander</i>	207
<i>Hypoconera punctatissima</i> (Roger) (Hym.: Formicidae) re-discovered outdoors in a Northamptonshire garden. <i>R. Colin Welch</i>	Plate L 207-208
Another Latticed Heath <i>Chiasmia clathrata</i> (L.) ab. <i>obsoletissima</i> Cockayne (Lep.: Geometridae) at Holme Dunes, Norfolk. <i>Jon Clifton</i>	208
Another British location for the ant lion <i>Euroleon nostras</i> (Geoffroy) (Neur.: Myrmeleontidae). <i>Colin W. Plant</i>	230
<i>Oncomera femorata</i> (Fabr.) (Col.: Oedemeridae) new to Hertfordshire. <i>Colin W. Plant</i>	230
The continuing spread of <i>Nephus quadrimaculatus</i> (Herbst) (Col.: Coccinellidae). <i>C. M. Everett</i>	233
<i>Scraptia fuscata</i> Müller and <i>S. testacea</i> Allen (Col.: Scaptiidae) in Buckinghamshire. <i>A. P. Foster</i>	233-234
Sandhill Rustic <i>Luperina nickerlii</i> (Freyer) <i>gueneei</i> (Doubt.) (Lep.: Noctuidae): new to Denbighshire (VC 50). <i>Sam Thomas, Alan Wagstaff & Adrian Wander</i>	234-235
Hazards of butterfly collecting: We are going to shoot you, Sir – Benin, Nigeria, 1969. <i>Torben B. Larsen</i>	235-236

Subscriber Notice

National Gelechiid Lepidoptera Recording Scheme. <i>Graham Irving</i>	229
-----------------------------------------------------------------------------	-----

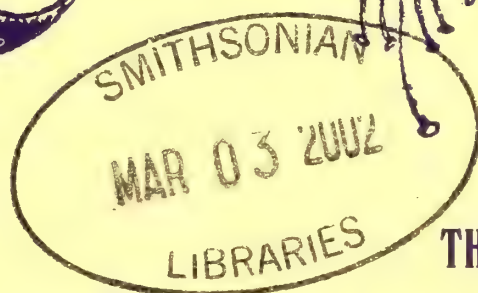
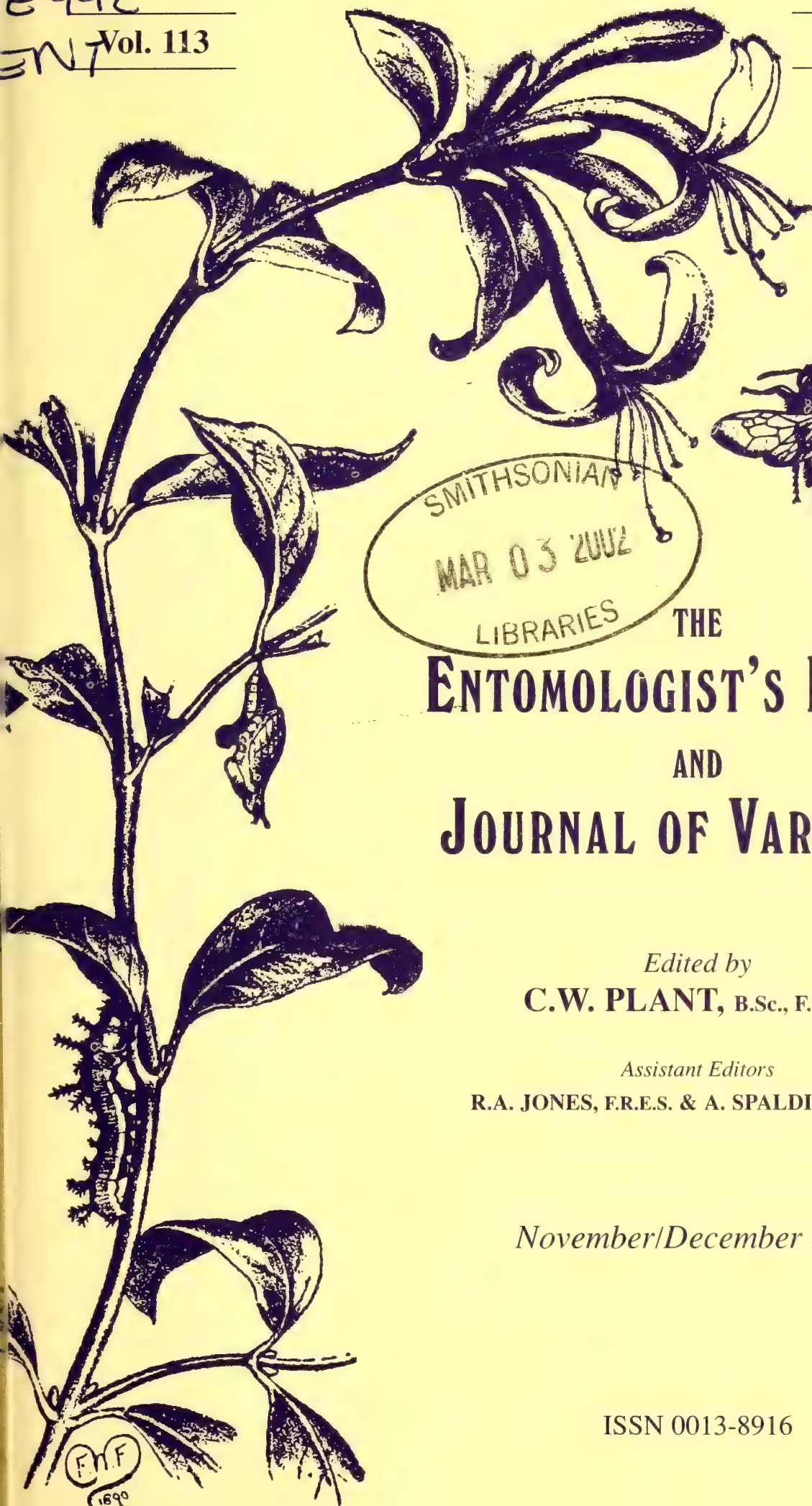
Continued on inside back cover

DL
461
E992
ENT

PUBLISHED BI-MONTHLY

Part 6

Vol. 113



THE
ENTOMOLOGIST'S RECORD
AND
JOURNAL OF VARIATION

Edited by
C.W. PLANT, B.Sc., F.R.E.S.

Assistant Editors
R.A. JONES, F.R.E.S. & A. SPALDING, F.R.E.S.

November/December 2001

ISSN 0013-8916



THE ENTOMOLOGIST'S RECORD

AND JOURNAL OF VARIATION

World List abbreviation: *Entomologist's Rec. J. Var.*

Editor

C.W. PLANT, B.Sc., F.R.E.S.

14 West Road, Bishops Stortford, Hertfordshire CM23 3QP.

Telephone: 01279 507697 E-mail: colinwplant@ntlworld.com

Assistant Editors

R.A. JONES, B.Sc., F.R.E.S., F.L.S. & A. SPALDING, M.A., F.R.E.S.

Editorial Panel

A.A. Allen, B.Sc., A.R.C.S.

N. L. Birkett, J.P., M.A., M.B., F.R.E.S.

J.D. Bradley, Ph.D., F.R.E.S.

J.M. Chalmers-Hunt, F.R.E.S.

P.J. Chandler, B.Sc., F.R.E.S.

C.A. Collingwood, B.Sc., F.R.E.S.

C.J. Luckens, M.B., Ch.B., D.R.C.O.G.

B. Skinner

P.A. Sokoloff, M.Sc., C.Biol., M.I.Biol., F.R.E.S.

Registrar

R.F. McCormick, F.R.E.S. 36 Paradise Road, Teignmouth, Devon TQ14 8NR

Hon. Treasurer

C.C. Penney, F.R.E.S. 109 Waveney Drive,
Springfield, Chelmsford, Essex CM1 7QA

Photograph Editor

David Wilson, 9 Lode Lane, Wicken,
Cambridgeshire CB7 5XP

WHERE TO WRITE

Papers, notes, books for review, notices, adverts etc – *Editor*

Changes of address – *Registrar*

New subscriptions, renewals, donations, non-arrival of Journal – *Treasurer*

Back issues – Paul Sokoloff, 4 Steep Close, Green Street Green, Orpington, Kent BR6 6DS

ANNUAL SUBSCRIPTION RATES

Individual subscriber £28

Institutional subscriber £40

Readers are respectfully advised that the publication of material in this journal does not imply that the views and opinions expressed therein are shared by the Editor, the Editorial Panel or any party other than the named author or authors.

Guidelines for contributors

We welcome articles for publication from all sources. It is not necessary for authors to be subscribers. Please follow the format of articles in this issue of the journal. Full instructions may be obtained by post from the editor or via our web site at:

<http://members.netscapeonline.co.uk/colinwplant/entrechome.html>

We are now able to include colour or black and white photographs (or slides), where these effectively illustrate a point in your article.

We publish notes and peer-reviewed papers on **British Isles** insects, primarily Lepidoptera and Coleoptera, but contributions on any other group may also be sent. We also include articles on European species in some situations, where we believe this to affect the British Isles fauna or to be of interest to British Isles entomologists. Non-European articles may be included, rarely, and entirely at editorial discretion.

All papers are subject to peer-review and are almost always returned to the author for corrections to be made. Authors should be prepared to make changes. Notes and communications are reviewed by the editorial panel and are not normally returned to authors for checking.

We are able to accept typed papers and notes, or even hand-written notes, if necessary. However, it helps enormously to receive manuscripts via E-mail or on floppy disk, in a PC-compatible format that can be read by Microsoft Word 2000. Drawings, graphs, photographs etc may be sent in an electronic form that has been previously agreed with us. In all other cases, we need the originals (which will be returned).

Authors of papers may receive 25 free reprints and can pay for more. All reprints must be ordered on a form provided with the proofs. Reprints of notes are not provided unless specifically requested **at the time of submission**.

The editor is always happy to discuss contributions with authors and will be especially pleased to offer help to anyone writing an article for the first time.

MICROLEPIDOPTERA REVIEW OF 2000

J. R. LANGMAID¹ AND M. R. YOUNG²¹Wilverley, 1 Dorrita Close, Southsea, Hampshire PO4 0NY. (john@langmaidj.freemove.co.uk)²Culterty Field Station, Department of Zoology, University of Aberdeen, Newburgh,
Aberdeenshire AB41 6AA. (nhi220@abdn.ac.uk)

THE YEAR 2000 was again rather poor for microlepidoptera in general but nevertheless a good number of new vice-county records have accrued and are reported below.

The weather in 2000 provided both one of the warmest and one of the wettest years on record. The early part of the year was generally sunny, mild and dry, except that north-west Britain was rather wet and there was some snow in mid-February. March was also mild and dry, but with cooler weather in the north, before a very wet April across the country, with some snow in central and western Britain. May and June were both rather unsettled, with some very wet spells. However May started dry and sunny and the third week of June was also hot. Late June again became wet and cool and this unseasonal weather lasted until well into July, giving a very poor impression of the summer. Late July improved and August was warmer, drier and sunnier than average but with near freezing temperatures in northern Britain late in the month. It was then warm but very wet in September, October was the wettest since 1903 and November the wettest since 1970, so that overall the autumn was exceptionally wet. This very wet weather was most pronounced in the south but everywhere was wetter than average. Finally December was mild at first but very cold later in the month, with some snow and rain completing the wet season.

The only completely new species to Britain in 2000 was an adventive, *Prays citri* (Millière), which was presumably imported into London with citrus fruit. However, *Parornix finitimella* (Zeller) and *Coleophora pappiferella* Hofmann were new to Scotland, the latter previously only having been found in western Ireland! *Monochroa tetragonella* (Stainton) and *Bactra lacteana* Caradja were new to Wales and the latter has now been recognised from several scattered localities in western Britain and is presumably unrecognised in many others. Ireland had *Phyllocnistis unipunctella* (Stephens), *Coleophora salicorniae* Heinemann & Wocke and *Stenoptilia zophodactylus* (Duponchel) newly recorded.

A number of rare species were either rediscovered or found at new localities. *Trifurcula beirnei* Puplesis was recorded for the first time since 1935 and *Coleophora fuscicornis* Zeller and *Archips oporana* (Linnaeus) were found more widely than before. *C. fuscicornis* had previously only been found in Essex but its foodplant, *Vicia tetrasperma*, is more widespread and it had been predicted that it would be found elsewhere. Even so, the record from Dorset indicates a large extension of range. *A. oporana* has always been local but had been found in conifer woods in most of central southern England. However, it has been rarely seen in recent years. The cause of this recent

scarcity is unknown so it is good to have records in 2000 from Dorset and south Hampshire.

We are most grateful to those who have contributed records and they have been identified in the list by their initials: D. J. L. Agassiz, H. E. Beaumont, K. P. Bland, K. G. M. Bond, K. V. Cooper, M. F. V. Corley, A. M. Davis, B. Dickerson, M. J. Ellis, T. H. Freed, R. G. Gaunt, D. J. Gibbs, B. Goodey, D. G. Green, M. W. Harper, R. J. Heckford, B. P. Henwood, R. I. Heppenstall, S. H. Hind, D. Hipperson, M. R. Honey, S. A. Knill-Jones, J. R. Langmaid, N. R. Lowe, D. V. Manning, D. O'Keeffe, R. M. Palmer, S. M. Palmer, M. S. Parsons, M. G. Pennington, C. W. Plant, J. T. Radford, E. G. Smith, M. H. Smith, P. H. Sterling, I. R. Thirlwell and M. R. Young.

It is pleasing that so many people regularly send in new records but rather worrying that so few new recorders have come forward in recent years.

Titles of journals are abbreviated as follows: *Ent. Rec.* for the *Entomologist's Record and Journal of Variation*; *Ent. Gaz.* for the *Entomologist's Gazette*; and *Atropos* in full.

As a general rule only new VC records are included in the following systematic list. We have taken advantage of A.M. Emmet's maps to recognise these and are most grateful for his time and trouble in checking them. They are both bold and underlined. We have used J.D. Bradley's 2000 checklist as our guide to nomenclature and species order, including the "log book" numbers. Several pre-2000 records are included – these had arrived too late for inclusion in the 1999 Review.

We would request that records for the 2001 review are sent to John Langmaid as soon as possible, as we would like to publish the Review during 2002. Please try and use the full and exact format that is used the Review, as this greatly eases the task of collation. It is also possible to send records by e-mail to john@langmaidj.freemove.co.uk.

We are most grateful to the efforts of so many recorders, who have contributed to increasing our knowledge of the distribution of our British and Irish Microlepidoptera.

A final sombre comment must be included. Maitland Emmet, the most influential and knowledgeable micro-lepidopterist of the last forty years, died on 3 March 2001, following a short period of decline. He was a dear friend to so many of us who now study micros and we cannot hope to emulate his breadth of knowledge and energy. He was always an enthusiastic contributor to, and supporter of, this yearly list, having single-handedly established the mapping system that underpins it. We shall miss him so much!

SYSTEMATIC LIST

MICROPTERIGIDAE

- 4 *Micropterix aruncella* (Scop.) — Clyard (**H26**) 17.vii.2000 — KGMB
- 5 *M. calthella* (Linn.) — Milltown (**H12**) 11.v.2000 — KGMB

ERIOCRANIIDAE

- 9 *Eriocrania sparrmannella* (Bosc) — Gait Barrows NNR (**60**) tenanted mines on *Betula pubescens* 21.vi.2000 — RMP & JRL; Bennachie (**93**) tenanted mine 27.vi.2000 — RMP, MRY & JRL

NEPTICULIDAE

- 19 *Bohemannia quadrimaculella* (Boh.) — Flixton (**59**) 2.vi.2000 — K. McCabe per SMP
- 23 *Ectoedemia argyropeza* (Zell.) — Achany Glen (**107**) mine on *Populus tremula* 2.xi.2000, det. MRY — D. Williams per MRY
- 29 *E. atricollis* (Staint.) — Higher Ferry (**51**) mine on *Malus* 10.ix.2000 — SHH
- 36 *E. quinquella* (Bed.) — Hollow Marsh (**6**) vacated mine on *Quercus robur* 16.x.1999 — MJE, *Ent. Rec.* **112**: 135.
- 42 *E. septembrella* (Staint.) — Higher Ferry (**51**) mine on *Hypericum calycinum* 10.ix.2000 — SHH
- 47 *Trifurcula beirnei* Pupl. — Southsea (11) 20.viii.2000, genitalia det., last recorded in Britain in 1935 — JRL
- 50 *Stigmella aurella* (Fabr.) — Altass (**107**) mine on *Rubus* 19.x.2000, det. MRY — D. Williams per MRY
- 59(61) *S. poterii* (Staint.) f. *serrella* Staint. — Wartle Moss (**93**) mine on *Potentilla erecta* 7.x.2000 — MRY
- 66 *S. sorbi* (Staint.) — Clevedon (**6**) vacated mine 11.xi.2000, det. J. Robbins — A. Musgrove & J. Martin per MJE
- 67 *S. plagicolella* (Staint.) — Ballintra (**H34**) mines 30.ix.2000 — KGMB
- 68 *S. salicis* (Staint.) — Ballintra (**H34**) mines 30.ix.2000 — KGMB
- 70 *S. obliquella* (Hein.) — Rossington (**63**) 27.viii.2000, genitalia det. — RIH
- 73 *S. trimaculella* (Haw.) — Navan (**H22**) mines 16.ix.2000 — KGMB
- 74 *S. assimilella* (Zell.) — Achany Glen (**107**) mine on *Populus tremula* 18.x.2000 — D. Williams per MRY, **most northerly record.**
- 76 *S. carpinella* (Hein.) — Stansted Forest (**13**) mines on *Carpinus* 14.x.2000, moth bred — JRL & IRT
- 82 *S. paradoxa* (Frey) — Sound Heath (**58**) mine on *Crataegus* 21.vii.2000 — SHH
- 86 *S. roborella* (Johan.) — Hadham Ford (**20**) mines on oak 30.viii.2000 — C. Watson per CWP; Haddo House (**93**) mine on oak 8.x.2000 — MRY
- 87 *S. svenssoni* (Johan.) — Haddo House (**93**) mine on oak 8.x.2000 — MRY
- 88 *S. samiatella* (Zell.) — King's Cliff Wood (**5**) vacated mine on *Castanea* 20.vii.1999 — MJE, *Ent. Rec.* **112**: 135; Berridge (**6**) mines on *Castanea* 8.x.2000 — MJE; *Ent. Rec.* **113**: 79; Chorleywood Common (**20**) vacated mine on *Castanea* 3.x.2000 — CWP
- 92 *S. anomalella* (Goeze) — Pollardstown Fen (**19**) tenanted mines 1.ix.2000 — KGMB
- 103 *S. nylandriella* (Tengst.) — Beacon Hill Wood (**6**) mines on *Sorbus aucuparia* 7.viii.2000 — MJE, *Ent. Rec.* **113**: 79.
- 110 *S. betulicola* (Staint.) — Wartle Moss (**93**) mine on *Betula* 7.x.2000 — MRY; East Sutherland (**107**) mine on *Betula* 19.x.2000, det. MRY — D. Williams per MRY
- 115 *S. alnetella* (Staint.) — Contin (**106**) mine on *Alnus glutinosa* 28.ix.2000 — MRY, **most northerly record.**

OPOSTEGIDAE

- 121 *Pseudopostega crepusculella* (Zell.) — Pant-y-Sais NNR (**41**) 10.viii.1999 — M.J. White, *Ent. Rec.* **112**: 176-177.

PRODOXIDAE

- 132 *Lampronia praelatella* ([D. & S.]) — Wartle Moss (**93**) 2.vi.2000 — MRY

ADELIDAE

- 141 *Nematopogon schwarziellus* Zell. — St John's Wood (**H25**) 13.v.2000 — KGMB
146 *Nemophora cupriacella* (Hüb.) — Gait Barrows NNR (**60**) 27.vii.2000 — RMP & SMP
152 *Adela rufimitrella* (Scop.) — Kilcolman (**H8**) 22.v.2000; Askingarran Lower (**H12**) 20.v.2000; White Lough (**H32**) 21.v.2000 — KGMB

HELIOZELIDAE

- 156 *Heliozela resplendella* (Staint.) — Contin (**106**) mine on *Alnus glutinosa* 28.ix.2000 — MRY
157 *H. hammoniella* (Sorh.) — Wartle Moss (**93**) mine on *Betula* 7.x.2000 — MRY

PSYCHIDAE

- 191 *Acanthopsyche atra* (Linn.) — Mar Estate (**92**) larva in pitfall trap vi.2000 — A. Godfrey per MRY

TINEIDAE

- 200 *Psychoides filicivora* (Meyr.) — Thurstaston (**58**) larvae on *Phyllitis* 27.ii.2000 — I.F. Smith per SHH
203 *Infurcitinea argentimaculella* (Staint.) — Denton Wood (**32**) 3.viii.2000 — DVM
230 *Monopis crocicapitella* (Clem.) — Northampton (**32**) 3.v.2000, det. MSP — G. Boyd per DVM
231 *M. imella* (Hüb.) — Holland Park (**21**) 11.v.1998 — THF

BUCCULATRICIDAE

- 273 *Bucculatrix thoracella* (Thunb.) — Gait Barrows NNR (**60**) 13.v.2000 — SMP

GRACILLARIIDAE

- 284 *Caloptilia rufipennella* (Hüb.) — Freshwater (**10**) 23.ix.2000 — SAK-J; Quenington (**33**) spinings on *Acer pseudoplatanus* viii.2000 — MFVC; Llanywern (**42**) 20.x.2000 — NRL; Contin (**106**) mine 28.ix.2000 — MRY
285 *C. azaleella* (Brants) — Norwich (**27**) 8.v.2000 — S. Paston per DH; Rossington (**63**) 9.ix.2000 — RIH
288 *C. stigmatella* (Fabr.) — Ardesier (**96**) 23.ix.2000 — S. Moran per MRY
295 *C. hauderi* (Rebel) — Catherington (**11**) 25.vii.2000 — R.J. Moore per JRL
294 *Aspilapteryx tringipennella* (Zell.) — Clare Island (**H27**) 16.vii.2000 — KGMB
302a *Parornix carpinella* (Frey) — Tangley (**12**) mines 2.x.1997 — DGG; Stansted Forest (**13**) spinings on *Carpinus* 14.x.2000 — IRT & JRL
308 *P. finitimella* (Zell.) — Gait Barrows NNR (**60**) 13.v.2000, genitalia det. — SMP; St Abbs Head (**81**) mine with larva on *Prunus spinosa* 9-23.ix.2000 — DVM, New to Scotland.

- 310 *Callisto denticulella* (Thunb.) — Higher Ferry (**51**) mine on *Malus* 10.ix.2000 — SHH
- 329 *Phyllonorycter spinicolella* (Zell.) — Larkfied (**H29**) mines 30.ix.2000; Ballintra (**H34**) mine 30.ix.2000 — KGMB
- 332 *P. corylifoliella* (Hübner.) — Hyssington (**47**) 31.vii.2000 — D.J. Poynton & I.F. Smith *per* SHH
- 332a *P. leucographella* (Zell.) — Abbotskerkwell (**3**) mines on *Pyracantha* 23.iii.2000, moths bred — BPH; Street (**5**) mines on *Pyracantha* 5.xii.2000 — DJLA; Leathley (**65**) mines on *Pyracantha* 24.xii.2000 — A. Musgrove *per* JRL
- 342 *P. coryli* (Nic.) — Ballindooly Lough (**H17**) mines 30.viii.2000 — KGMB
- 344 *P. strigulatella* (L. & Z.) — Daventry Country Park (**32**) mines on *Alnus incana* 14.xi.2000 — DVM
- 363 *P. platanoidella* (Joann.) — Weymouth (**9**) many mines on *Acer platanoides* 19.x.2000 — PHS; Bouldnor Forest (**10**) mine on *Acer platanoides* 14.x.2000 — D.T. Biggs *per* JRL
- 365 *P. comparella* (Dup.) — Cheddar (**6**) mines on *Populus nigra* 4.xi.2000 — MJE, *Ent. Rec.* **113**: 79
- 368 *Phyllocnistis unipunctella* (Steph.) — Navan (**H22**) mine on *Populus nigra* 16.ix.2000 — KGMB, *Ent. Gaz.* **52**: 208, **New to Ireland**.

CHOREUTIDAE

- 385 *Anthophila fabriciana* (Linn.) — Clare Island (**H27**) larvae 28.iv.2000 — KGMB
- 387 *Prochoreutis sehestediana* (Fabr.) — Ravensroost Wood (**7**) larvae 9.vii.2000, moth bred, genitalia det. — EGS & MHS

GLYPHIPTERIGIDAE

- 392 *Glyphipterix schoenicolella* Boyd — Lagduff More (**H27**) 25.viii.2000 — KGMB

YPONOMEUTIDAE

- 401 *Argyresthia laevigatella* (Heydenr.) — Bennachie (**93**) 27.vi.2000 — RMP, MRY & JRL
- 403 *A. glabratella* (Zell.) — Bennachie (**93**) 27.vi.2000 — RMP, MRY & JRL
- 407 *A. dilectella* Zell. — St John, Jersey (**113**) 1.vii.1999 — R. Long *per* JRL
- 409a *A. trifasciata* Staud. — Petts Wood (**16**) 8.v.2000 — DO'K; Plaistow (**18**) 6.v.2000 — G. Martin *per* CWP; Bishops Stortford (**20**) 15.v.2000 — CWP; Flixton (**59**) 12.v.2000 — K. McCabe *per* SMP; Rossington (**63**) 14.v.2000 — RIH
- 410 *A. brockeella* (Hübner.) — Ballinahistle (**H15**) 10.viii.2000 — KGMB
- 418 *A. conjugella* Zell. — Dooleeg Beg (**H27**) 17.vii.2000 — KGMB
- 421 *A. bonnetella* (Linn.) — Clare Island (**H27**) 15.vii.2000 — KGMB
- 422 *A. albistria* (Haw.) — Ballindooly Lough (**H17**) 30.viii.2000 — KGMB
- 425 *Yponomeuta padella* (Linn.) — Torry Bay LNR (**85**) 27.vii.1999 — S.C. Smith *per* KPB
- 426 *Y. malinellus* Zell. — Northampton (**32**) 12.vii.2000 — G. Boyd *per* DVM; Gwaith Powdwr (**48**) 29.vii.2000 — AMD
- 431 *Y. sedella* Treits. — Gwaith Powdwr (**48**) 29.vii.2000 — AMD
- 434 *Kessleria saxifragae* (Staint.) — Sròn Dha Mhurchaidh (88) larva on *Saxifraga hypnoides* 11.vi.2000, moth bred, previously unrecorded foodplant — RJH

- 435 *Zelleria hepariella* Staint. — Gwaith Powdwr (**48**) 29.vii.2000 — AMD; Ballinahistle (**H15**) 10.viii.2000 — KGMB
- 440 *Paraswammerdamia albicapitella* (Scharf.) — Stoke Holy Cross (**27**) 12.vi.2000 — A. Musgrove *per* DH
- 441 *P. lutarea* (Haw.) — Buttington Quay (**47**) 6.viii.2000 — D.J. Poynton & I.F. Smith *per* SHH
- 444 *Ocnerostoma piniariella* Zell. — Cawston (**27**) 29.vii.2000 — A. Beaumont *per* DH
- 449a *Prays citri* Mill. — South Kensington (**21**) 9.v.2000 — MRH, **New to Britain**.
- 459 *Ypsolopha sylvella* (Linn.) — Flixton (**59**) 28.ix.2000 — K. McCabe *per* SMP
- 252 *Ochsenheimeria urella* F.v.R. — Rhadley (**40**) 30.vii.2000 — D.J. Poynton & I.F. Smith *per* SHH
- 253 *O. vacculella* F. v. R. — Weston Moor (**6**) 14.vii.2000 — DJG
- 464 *Plutella xylostella* (Linn.) — Clare Island (**H27**) 24.viii.2000 — KGMB
- 467 *Rhigognostis annulatella* (Curt.) — Clare Island (**H27**) 24.viii.2000 — KGMB
- 476 *Acrolepia autumnitella* (Curt.) — Denhall, Ness (**58**) larvae on *Solanum dulcamara* 2.ix.2000, moths bred — I.F. Smith *per* SHH

LYONETIIDAE

- 258(257) *Leucoptera lathyrioliella* (Staint.) f. *orobi* Staint. — Kinloch Glen, Isle of Rum (**104**) tenanted mines on *Trifolium pratense* 31.viii.2000, moths bred, previously unrecorded foodplant — KPB

COLEOPHORIDAE

- 491 *Coleophora gryphipennella* (Hübner.) — Pollardstown Fen (**H19**) mines 1.xi.2000 — KGMB
- 493 *C. serratella* (Linn.) — Killaun NR (**H18**) cases 12.v.2000 — KGMB
- 504 *C. lusciniapennella* (Treits.) — Clare Island (**H27**) 17.vi.2000; Murvagh (**H34**) case on *Salix repens* 30.ix.2000 — KGMB
- 515 *C. albitarsella* Zell. — Skelmersdale (**59**) 24.vii.2000 — C. Darbyshire *per* SMP
- 516 *C. trifolii* (Curt.) — Breydon (**27**) cases 29.viii.2000 — K. Saul *per* DH
- 517 *C. alcyonipennella* (Koll.) (= *frischella* sensu auctt.) — St Catherine, Jersey (**113**) 31.vii.1999 — R. Long *per* JRL
- 518 *C. mayrella* (Hübner.) — Torry Bay LNR (**85**) 12.vi.2000 — S.C. Smith *per* KPB
- 520 *C. fuscicornis* Zell. — Eype's Mouth (**9**) 28.vi.2000, genitalia det. — DJG, *Ent. Gaz.* **52**: 166
- 522 *C. lineolea* (Haw.) — Parr, St Helens (**59**) 19.vii.2000, genitalia det. SMP — R. Banks *per* SMP
- 524 *C. lithargyrinella* Zell. — Great Saltee Island (**H12**) cases 14.viii.2000 — KGMB
- 536 *C. betulella* Hein. & Wocke — Flixton (**59**) case on *Betula* sp., moth bred, genitalia det. SMP — K. McCabe *per* SMP
- 545 *C. saturatella* Staint. — Trooper's Hill, Bristol (**34**) 30.vii.2000 — DJG
- 555 *C. follicularis* (Vallot) — Ballincollig Country Park (**H4**) cases on *Pulicaria* 5.vi.2000; Foxhole (**H5**) cases 7.v.2000; Ballinahistle (**H15**) mines 13.v.2000 — KGMB
- 559 *C. peribenanderi* Toll — Bunnow East (**H9**) case on *Cirsium dissectum* 15.vi.2000 — KGMB
- 560 *C. paripennella* Zell. — Ballynamona (**H17**) cases 12.v.2000 — KGMB

- 563 *C. argentula* (Steph.) — Higher Ferry (**51**) cases on *Achillea millefolium* 10.ix.2000 — SHH
- 564 *C. obscenella* H.-S. — Burrafirth, Unst (**112**) 12.vii.1998, det. KPB — W. Dickson *per* MGP
- 565 *C. saxicolella* (Dup.) — Tacumshin (**H12**) 13.viii.2000 — KGMB
- 566 *C. sternipennella* (Zett.) — Stony Stratford (**24**) 13.vii.2000, det. DVM — M. Killeby *per* DVM
- 567 *C. adpersella* Ben. — Tramore (**H6**) cases on *Atriplex portulacoides* 8.x.2000, det. H. van der Wolf; Tacumshin (**H12**) case 7.x.2000, det. H. van der Wolf — KGMB
- 570 *C. pappiferella* Hofm. — Morrone Birkwood NNR (**92**) 12.vi.2000 — RJH, **New to Scotland**, *Ent. Gaz.* **52**:101-104.
- 574 *C. deviella* Zell. — Holbeach (**53**) 7.vii.2000, genitalia det. JRL — JTR
- 577 *C. artemisicolella* Bruand — Higher Ferry (**51**) cases on *Artemisia vulgaris* 10.ix.2000 — SHH
- 581 *C. taeniipennella* H.-S. — Clare Island (**H27**) 17.vi.2000 — KGMB
- 583 *C. tamesis* Waters — Gwithian Beach Quarry (**1**) 5.vii.2000 — DJG; Clare Island (**H27**) 16.vii.2000, genitalia det. — KGMB
- 584 *C. alticolella* Zell. — Clare Island (**H27**) 17.vi.2000, genitalia det. — KGMB
- 588 *C. salicorniae* Hein. & Wocke — Tacumshin (**H12**) 20.vii.2000, genitalia det. — KGMB, *Ent. Gaz.* **52**: 208, **New to Ireland**.

ELACHISTIDAE

- 597 *Elachista atricomella* Staint. — Lochside, Harray (**111**) 20.viii.2000 — MRY
- 598 *E. kilmunella* Staint. — Presteigne (**43**) 4.viii.2000 — D.J. Poynton & I.F. Smith *per* SHH
- 610 *E. argentella* (Cl.) — Clare Island (**H27**) 17.vi.2000 — KGMB
- 614 *E. triseriatella* Staint. — Gait Barrows NNR (**60**) 21.vi.2000, genitalia det. — RMP & JRL
- 621 *E. subalbidella* Schl. — Lyradane Mountain (**H4**) 14.vi.2000 — KGMB
- 628 *Biselachista eleochariella* (Staint.) — Etal Moor (**68**) 15.vii.2000 — JTR
- 630 *B. albidella* (Nyl.) — Lagduff More (**H27**) 16.vii.2000 — KGMB
- 632 *Cosmiotes consortella* (Staint.) — Clare Island (**H27**) 28.iv.2000 — KGMB
- 633 *C. stabilella* (Staint.) — Portsmouth (**11**) 5.viii.2000 — IRT

OECOPHORIDAE

- 636 *Denisia similella* (Hübner) — Newstead Abbey Park (**56**) 31.vii.2000 — KVC
- 644 *Borkhausenia fuscescens* (Haw.) — Stony Stratford (**24**) 30.vii.2000, det. DVM — M. Killeby *per* DVM; Rhos Goch Common (**43**) larvae in 'witches broom' 22.iv.2000, moths bred — D.J. Poynton & I.F. Smith *per* SHH; Clyard (**H26**) 17.vii.2000 — KGMB
- 648 *Endrosis sarcitrella* (Linn.) — Clare Island (**H27**) 17.vi.2000 — KGMB
- 649 *Esperia sulphurella* (Fabr.) — Little Brick Pit (**34**) 22.v.2000 — DJG
- 650 *E. oliviella* (Fabr.) — Fir Tree Copse (17) 23.vii.2000 — AMD
- 653 *Aplota palpella* (Haw.) — Melbury Park (9) 19.vii.2000 — D. Hallett & PHS
- 654 *Pleurota bicostella* (Cl.) — Clare Island (**H27**) 17.vi.2000 — KGMB
- 656 *Tachystola acroxantha* (Meyr.) — New Romney (**15**) v.1999 — S.P. Clancy *per* DO'K

- 663 *Diurnea fagella* ([D. & S.]) — Cascob (**43**) 4.viii.2000 — D.J. Poynton & I.F. Smith *per* SHH; Poulmagunnoge (**H6**) 11.iii.2000 — KGMB
- 666 *Semioscopis avellanella* (Hübner.) — Gait Barrows NNR (**60**) 22.iv.2000 — SMP
- 670 *Depressaria daucella* ([D. & S.]) — Plaistow (**18**) 23.iii.2000 — G. Martin *per* BG; St John's Wood (**H25**) 12.v.2000 — KGMB
- 671 *D. ultimella* Staint. — Heysham (**60**) 28.viii.2000, det. JRL — J. Roberts *per* SMP
- 686 *Exaeretia ciniflonella* (L. & Z.) — Crathie (92) a dozen 13.ix.2000 — RJH & MRY
- 695 *Agonopterix alstromeriana* (Cl.) — Ardesier (**96**) 23.ix.2000 — S. Moran *per* MRY
- 697 *A. arenella* ([D. & S.]) — Fair Isle (**112**) 26.ix.1999, det. CWP — N.J. Riddiford *per* MGP
- 704 *A. scopariella* (Hein.) — Pennerley (**40**) larvae on *Cytisus scoparius* 30.vii.2000, moths bred; Hyssington (**47**) larvae on *Cytisus scoparius* 31.vii.2000, moths bred — D.J. Poynton & I.F. Smith *per* SHH; Billinge (**59**) 7.iii.2000, det. JRL — C. Darbyshire *per* SMP
- 705 *A. umbellana* (Fabr.) — Ardesier (**96**) 23.ix.2000 — MRY

ETHMIIDAE

- 717 *Ethmia terminella* Fletch. — West Wood, Thundersley (**18**) 29.vi.2000 — D.G. Down *per* BG

GELECHIIDAE

- 729 *Isophrictis striatella* ([D. & S.]) — Rossington (**63**) 2.viii.2000 — RIH
- 731a *Eulamprotes immaculatella* (Dougl.) (= *phaeella* Heck. & Lang.) — Torry Bay LNR (**85**) 13.viii.1999 — S.C. Smith *per* KPB
- 728 *Monochroa cytisella* (Curt.) — Clare Island (**H27**) 16.vii.2000 — KGMB
- 736 *M. lucidella* (Steph.) — Tacumshin (**H12**) 20.vii.2000, genitalia det.; Clare Island (**H27**) 16.vii.2000, genitalia det. O. Karsholt — KGMB
- 738 *M. tetragonella* (Staint.) — Crymlyn Burrows (**41**) 26.vi.1996, genitalia det. — NRL, **New to Wales.**
- 747 *Chrysoesthia sexguttella* (Thunb.) — Great Saltee Island (**H12**) 14.viii.2000 — KGMB
- 752 *Aristotelia ericinella* (Zell.) — South Kensington (**21**) 27.vii.2000 — MRH; Stockgrove Country Park (**24**) 29.vii.2000, det. DVM — M. Albertini *per* DVM
- 760 *Exoteleia dodecella* (Linn.) — Clare Island (**H27**) 16.vii.2000, genitalia det. — KGMB
- 765 *Teleiodes vulgella* ([D. & S.]) — Newtown (**47**) 5.viii.2000 — I.F. Smith *per* SHH
- 767 *Carpatolechia decorella* (Haw.) — Brompton (**21**) 17.iii.1998 — THF
- 772 *C. fugitivella* (Zell.) — Llangorse (**42**) 14.viii.2000 — NRL
- 791 *Chionodes distinctella* (Zell.) — Ballyteige Burrow (**H12**) 22.vii.2000 — KGMB
- 859 *Psoricoptera gibbosella* (Zell.) — Flixton (**59**) 22.viii.2000, genitalia det. SMP — K. McCabe *per* SMP
- 801a *Gelechia senticetella* (Staud.) — Datchworth (**20**) 31.vii.2000, genitalia checked — SMP, *Ent.Rec.* **113**: 42; Holland Park (**21**) 27.vii.1998 — THF
- 813 *Scrobipalpa salinella* (Zell.) — Crymlyn Burrows (**41**) 8.ix.2000, genitalia det. — NRL
- 815 *S. nitentella* (Fuchs) — Torry Bay LNR (**85**) 20.vi.2000 — S.C. Smith *per* KPB

- 820 *S. artemisiella* (Treits.) — Brean Down (**6**) 5.viii.2000, genitalia det. — DJG
 821 *S. murinella* (Dup.) — Morrone Birkwood NNR (**92**) 12.vi.2000 — RJH
 822 *S. acuminatella* (Sirc.) — Lady's Island Lake (**H12**) 14.viii.2000 — KGMB
 827 *Caryocolum alsinella* (Zell.) — Ainsdale (**59**) 12.viii.2000, genitalia det. SMP
 — SHH *per* SMP
 832 *C. blandella* (Dougl.) — Hyssington (**47**) 31.vii.2000 — D.J. Poynton & I.F. Smith *per* SHH
 843 *Aproaerema anthyllidella* (Hübner.) — Torry Bay LNR (**85**) 19.vi.2000 — S.C. Smith *per* KPB
 844 *Syncopacma larseniella* (Gozm.) — Lower Woods (**34**) 9.vii.1999 — DJG
 850 *S. polychromella* (Rebel) — Chessington (**17**) 1.ii.1999, det. K. Sattler — J. Porter *per* RMP, *Atropos* 7: 56.
 856 *Anarsia spartiella* (Schr.) — Penrhyndeudraeth (**48**) larvae on *Ulex europaeus* 29.vii.2000 — D.J. Poynton & I.F. Smith *per* SHH
 861 *Acompsia schmidtellus* (Heyd.) — Hambleden Great Wood (**24**) 27.vii.2000, det. DVM — P.R. Hall *per* DVM
 840 *Thiotricha subocellea* (Steph.) — Knocking Hoe (**30**) 9.ix.1999 — R.W.J. Uffen *per* DVM

BLASTOBASIDAE

- 873 *Blastobasis lignea* Wals. — Penrhyndeudraeth (**48**) 29.vii.2000 — D.J. Poynton & I.F. Smith *per* SHH

MOMPHIDAE

- 883 *Mompha raschkiella* (Zell.) — Navan (**H22**) mine 16.ix.2000; Lissananny (**H25**) mines 28.ix.2000; Tamlaght More (**H29**) mines 30.ix.2000 — KGMB
 884 *M. miscella* ([D. & S.]) — Morrone Birkwood NNR (**92**) 26.vi.2000 — RMP, MRY & JRL
 888 *M. propinquella* (Staint.) — Billinge (**59**) 24.vii.2000, det. SMP — C. Darbyshire *per* SMP
 890 *M. jurassicella* (Frey) (= *subdivisella* Bradl.) — Potteric Carr (**63**) 8.x.2000, genitalia det. HEB — RIH
 892 *M. subbistrigella* (Haw.) — Hilcot End (**33**) 15.vi.2000 — MSP; Torry Bay LNR (**85**) 24.iv.2000 — S.C. Smith *per* KPB
 893 *M. epilobiella* ([D. & S.]) — Presteigne (**43**) 4.viii.2000; Berriew canal (**47**) 1.viii.2000 — D.J. Poynton & I.F. Smith *per* SHH

COSMOPTERIGIDAE

- 896 - *Cosmopterix orichalcea* Staint. — Kilmory and Kinloch, Isle of Rum (104) tenanted mines on *Anthoxanthum odoratum* viii.2000, moths bred, confirmed as resident in Scotland — KPB Lyradane Mountain (**H4**) 14.vi.2000 — KGMB
 903 *Chrysoclista linneella* (Clerck) — Cadora Wood (**34**) 18.vi.2000, det. R. Barnett — RGG
 905 *Blastodacna hellerella* (Dup.) — Torry Bay LNR (**85**) 27.vi.1999 — S.C. Smith *per* KPB
 910 *Sorhagenia janiszewskae* Riedl — Gait Barrows NNR (**60**) larval workings in stems of *Rhamnus* 21.vi.2000 — RMP & JRL; imagines 27.vii.2000, genitalia

det. — RMP & SMP; Roudsea Wood NNR (**69**) larval workings in *Frangula* 22.vi.2000 — RMP & JRL, *Ent. Rec.* **113**: 81-82.

SCYTHRIDIDAE

- 917 *Scythris empetrella* K. & N. — Nr Lyndhurst (11) larvae 3.v.2000 — MSP & DGG, *Ent. Gaz.* **52**: 149-150

TORTRICIDAE

- 925 *Phtheochroa rugosana* (Hübner.) — Flixton (**59**) 18.vi.2000 — K. McCabe *per* SMP
 936 *Cochylimorpha straminea* (Haw.) — Lagduff More (**H127**) 19.vi.2000 — KGMB
 938 *Agapeta zoegana* (Linn.) — Tacumshin (**H12**) 20.vii.2000 — KGMB
 945 *Aethes cnicana* (Westw.) — Keel Bridge (**H26**) 17.vii.2000; Glengossera (**H27**) 18.vi.2000 — KGMB
 947 *A. smeathmanniana* (Fabr.) — Steeple View (18) larvae in seedheads of *Artemisia vulgaris* 14.iv.2000, moths bred, previously unrecorded foodplant — KPB
 950 *A. francillana* (Fabr.) — Ballyteige Burrow (**H12**) 22.vii.2000 — KGMB
 954 *Eupoecilia angustana* (Hübner.) — Culnacleha Bridge (**H12**) 25.viii.2000 — KGMB
 959 *Cochylidia rupicola* (Curt.) — Inchydoney (**H3**) 29.vii.2000 — KGMB
 964a *Cochylis molliculana* Zell. — Prawle Point (**3**) 29.viii.2000 — W. Urwin *per* JRL; Berry Head (3) 16.ix.2000 — BPH; Icklesham (**14**) 15.viii.2000, det. MSP — I. Hunter *per* MSP
 972 *Pandemis heparana* ([D. & S.]) — Ballinahistle (**H15**) 10.viii.2000 — KGMB
 976 *Archips oporana* (Linn.) — Morden (9) six 6.vii.2000 — P. Davey *per* PHS; Trigon (9) 21.vii.2000 — C. Manley & P. Davey *per* PHS; Hurn (11) 30.vii.2000 — M. Jeffes *per* PHS
 989 *Aphelia paleana* (Hübner.) — Lein of Garmouth (**95**) 29.vii.2000 — MRY
 993 *Clepsis spectrana* (Treits.) — Ballyteige Slob (**H12**) 25.vi.2000; Dooleeg Beg (**H27**) 17.vii.2000 — KGMB
 998 *Epiphyas postvittana* (Walk.) — Hemingford Grey (**31**) 8.ix.2000 — N. Greatorex-Davies *per* BD; Ledbury (**36**) 11.ix.2000 — MWH; Wern Plemys (**42**) 12.ix.2000 — NRL
 999 *Adoxophyes orana* (F.v.R.) — Baltasound (**112**) found indoors 22.xi.1998, det. KPB — MGP
 1024 *Cnephasia incertana* (Treits.) — Clare Island (**H27**) 20.vii.2000, genitalia det. — KGMB
 1031 *Eana penziana* (Thunb.) — Tarlair Bay (**94**) 12.viii.2000 — MRY
 1036 *Acleris forsskaleana* (Linn.) — Torry Bay LNR (**85**) 31.vii.1999 — S.C. Smith *per* KPB
 1048 *A. variegana* ([D. & S.]) — Cloonkeelwy (**H17**) 10.viii.2000 — KGMB
 1050 *A. kochiella* (Goeze) (= *boscana* (Fabr.) — Rockland St Mary (**27**) 17.vii.2000 — C. Regan *per* CWP, *Ent. Rec.* **113**: 12.
 1051 *A. logiana* (Clerck) — Hurn (11) 1.viii.2000, genitalia det. — M. Jeffes *per* PHS
 1055 *A. hyemana* (Haw.) — Lachtnafranke (H6) 11.iii.2000; Ballynamona (**H17**) 12.v.2000 — KGMB
 1058 *A. lorquiniana* (Dup.) — Icklesham (**14**) 25.x.2000, genitalia det. MSP — I. Hunter *per* MSP
 1062 *A. emargana* (Fabr.) — McGann's Cross (**H17**) 25.viii.2000 — KGMB

- 1013 *Olindia schumacherana* (Fabr.) — Broxbourne Woods (**20**) 15.vi.2000 — CWP
- 1080 *Olethreutes arcuella* (Cl.) — Gait Barrows NNR (**60**) 10.vi.2000 — R. Petley-Jones *per* SMP
- 1083 *Hedya nubiferana* (Haw.) — Clare Island (**H27**) 15.vii.2000 — KGMB
- 1084 *H. ochroleucana* (Fröl.) — Rossington (**63**) 21.vii.2000, genitalia det. — RIH
- 1089 *Apotomis semifasciana* (Haw.) — Gwaith Powdwr (**48**) 29.vii.2000 — AMD; Lein of Garmouth (**95**) 29.vii.2000 — MRY
- 1095 *A. sororculana* (Zett.) — Mann Wood, Great Leighs (**19**) 30.vi.2000 — D. Boyle *per* BG
- 1104 *Endothenia quadrimaculana* (Haw.) — Lein of Garmouth (**95**) 29.vii.2000 — MRY; Clare Island (**H27**) 15.vii.2000 — KGMB
- 1109 *Lobesia littoralis* (Humph. & Westw.) — Clare Island (**H27**) 15.vii.2000 — KGMB
- 1110 *Bactra furfurana* (Haw.) — Cockayne Hatley (**30**) 6-12.viii. 2000, ex RIS trap — DVM; Killin (**88**) 24.vi.2000 — RMP, MRY & JRL; Lein of Garmouth (**95**) 29.vii.2000 — MRY; Clare Island (**H27**) 17.vi.2000 — KGMB
- 1111 *B. lancealana* (Hübner.) — Askingarran Lower (**H12**) 20.v.2000; Ardakillen Lough (**H25**) 12.v.2000 — KGMB
- 1111a *B. lacteana* Caradja — Gwaith Powdwr (**48**) 29.vii.2000, genitalia det. JRL — AMD, **New to Wales**.
- 1114 *Eudemis porphyra* (Hübner.) — New Romney (**15**) 18.vii.1999 — S.P. Clancy *per* DO'K
- 1116 *Ancylis comptana* (Fröl.) — Cow Lane Pits (**31**) 27.vii.2000 — BD
- 1126 *A. badiana* ([D. & S.]) — Rassan (**H3**) 21.v.2000 — KGMB
- 1132 *Epinotia subocellana* (Don.) — Clare Island (**H27**) 17.vi.2000 — KGMB
- 1157 *Crociosema plebejana* Zell. — Eswick (**112**) 22.ix.1998, det. KPB — T. Rogers *per* MGP
- 1162 *Rhopobota myrtillana* (H. & W.) — Staunton Meend (**34**) 28.vi.2000 — RGG
- 1163 *Zeiraphera ratzeburgiana* (Ratz.) — College Wood (**24**) 21.vii.2000, det. DVM — M. Killeby *per* DVM; Llangorse (**42**) 13.vii.2000 — NRL
- 1178 *Epiblema roborana* ([D. & S.]) — Torry Bay LNR (**85**) 10.vii.1999 — S.C. Smith *per* KPB
- 1179 *E. incarnatana* (Hübner.) — Colekitchen Down (17) 7.viii.2000 — AMD
- 1182 *E. turbidana* (Treits.) — Boughton Mill (**32**) 2.vii.2000, det. DVM — P.D. Sharpe *per* DVM
- 1184a *E. cirsiana* (Zell.) — Clare Island (**H27**) 17.vi.2000 — KGMB
- 1187 *E. costipunctana* (Haw.) — Belderra Strand (**H27**) 17.vii.2000 — KGMB
- 1197 *Eucosma campoliliana* ([D. & S.]) — Clare Island (**H27**) 16.vii.2000 — KGMB
- 1201 *E. cana* (Haw.) — Partry (**H26**) 17.vii.2000 — KGMB
- 1204 *Thiodia citrana* (Hübner.) — Pitsford Water NR (**32**) vii.2000, det. DVM — P. Horsnail *per* DVM
- 1225 *Pammene obscurana* (Steph.) — South Kensington (**21**) 9.v.2000 — MRH
- 1229 *P. albuginana* (Guen.) — Danemead Wood NR (**20**) 20.vi.2000, genitalia det. — CWP
- 1233 *P. aurita* Ratz. — Higher Ferry (**51**) 2.viii.2000 — J. Raines *per* SHH; Birkenhead (**58**) viii.2000 — G. Jones *per* SHH; Flixton (**59**) 5.viii.2000 — K. McCabe *per* SMP

- 1237 *P. germmana* (Hübner.) — Salcey Forest (**32**) 29.v.2000, det. DVM — P.D. Sharpe per DVM
- 1271 *P. gallicana* (Guen.) — Checkley (36) 7.viii.2000, first record since Victoria County History — MWH
- 1245 *Grapholita janthinana* (Dup.) — Welshpool (**47**) 6.viii.2000 — D.J. Poynton & I.F. Smith per SHH
- 1252 *G. lunulana* ([D. & S.]) — Wigan (**59**) 14.v.2000 — C. Darbyshire per SMP
- 1255 *Cydia succedana* ([D. & S.]) — Cappayuse (**H25**) 12.v.2000 — KGMB
- 1278 *Dichrorampha sequana* (Hübner.) — Navigation Cop, Chester (**58**) 17.vi.2000 — I.F. Smith per SHH

EPERMENIIDAE

- 483 *Epermenia chaerophyllella* (Goeze) — Clare Island (**H27**) 28.iv.2000 — KGMB

SCHRECKENSTEINIIDAE

- 485 *Schreckensteinia festaliella* (Hübner.) — College Wood (**24**) 29.vii.2000, det. DVM — M. Killeby per DVM

PYRALIDAE

- 1297 *Crambus uliginosellus* Zell. — Colaton Raleigh Common (3) larvae amongst *Campylum stellatum* 25.v.2000, moths bred — RJH
- 1299 *C. hamella* (Thunb.) — Wells (**6**) 25.viii.2000 — A. Duff per MJE, *Ent. Rec.* **113**: 79.
- 1301 *C. lathoniellus* (Zinck.) — Lough Makeegan (**H23**) 21.v.2000 — KGMB
- 1302 *C. perllella* (Scop.) — Ballyteige Slob (**H12**) 25.vi.2000 — KGMB
- 1303 *Agriphila selasella* (Hübner.) — Tacumshin (**H12**) 13.viii.2000 — KGMB
- 1305 *A. tristella* ([D. & S.]) — Manulla Junction (**H26**) 25.viii.2000 — KGMB
- 1309 *A. geniculea* (Haw.) — Abbert Bridge (**H17**) 10.viii.2000; Clare Island (**H27**) 23.viii.2000 — KGMB
- 1314 *Catoptria margaritella* ([D. & S.]) — McGann's Cross (**H17**) 25.viii.2000 — KGMB
- 1316 *C. falsella* ([D. & S.]) — Higher Ferry (**51**) 10.ix.2000 — SHH
- 1324 *Pediasia aridella* (Thunb.) — Gwaith Powdwr (**48**) 29.vii.2000 — AMD
- 1328 *Schoenobius gigantella* ([D. & S.]) — South Kensington (**21**) 8.vi.2000 — MRH
- 1334 *Scoparia ambigualis* (Treits.) — Trowlesworthy Warren (3) larvae amongst dead bracken beneath *Pleurozium schreberi* 28.vi.2000, moths bred, larvae not previously found in summer — RJH; Lyradane Mountain (**H4**) 14.vi.2000 — KGMB
- 1335 *S. ancipitella* (La Harpe) — Lecht Road (**92**) 25.vii.2000 — J. Chainey per AMD
- 1336 *Eudonia pallida* (Curt.) — Torry Bay LNR (**85**) 18.viii.2000 — S.C. Smith per KPB; Lein of Garmouth (**95**) 29.vii.2000 — MRY
- 1340 *E. truncicolella* (Staint.) — Tarlair Bay (**94**) 12.viii.2000 — MRY
- 1341 *E. lineola* (Curt.) — Tarlair Bay (**94**) 12.viii.2000 — MRY
- 1342 *E. angustea* (Curt.) — Lagduff More (**H27**) 19.vi.2000 — KGMB
- 1350 *Nymphula stagnata* (Don.) — Newtown (**47**) 5.viii.2000 — I.F. Smith per SHH; Dooleeg Beg (**H27**) 17.vii.2000 — KGMB
- 1354 *Cataclysta lemnata* (Linn.) — Welshpool (**47**) 6.viii.2000 — D.J. Poynton & I.F. Smith per SHH

- 1356a *Evergestis limbata* (Linn.) — Hayling Island (**11**) 2.vii.2000 — J.W. Phillips *per* JRL
- 1357 *E. extimalis* (Scop.) — Westonzoyland (**6**) 24.ix.2000, det. D. Slade — D. Miller, *Ent.Rec.* **113**: 39.
- 1358 *E. pallidata* (Hufn.) — Ballyroe (**H12**) 22.vii.2000; Cloondeas Lough (**H27**) 17.vii.2000 — KGMB
- 1374a *Sclerocona acutellus* (Eversmann) — West Wittering (**13**) 13.vi.2000, det. AMD — M. Love *per* AMD
- 1380 *Phlyctaenia perlucidalis* (Hübner) — Hilcot End (**33**) 19.vi.2000 — MSP
- 1386 *Opsibotys fuscalis* ([D. & S.]) — Tacumshin (**H12**) 20.vii. 2000 — KGMB
- 1390 *Udea prunalis* ([D. & S.]) — Graffa More (**H27**) 17.vii.2000 — KGMB
- 1398 *Nomophila noctuella* ([D. & S.]) — Mt Garrett Bridge (**H11**) 13.viii.2000; Cloonkeelwy (**H17**) 10.viii.2000; Dromore (**H29**) 24.ix.2000 — KGMB
- 1401 *Maruca vitrata* (Fabr.) — Congleton (**58**) 16.viii.2000 — A. Kimber *per* SHH, *Atropos* **12**: 79.
- 1403a *Duponchelia fovealis* Zell. — Milton-on-Stour (**9**) 17.v.2000 — J. Burge *per* PHS; Ventnor (**10**) 23.vi.2000 — P.J. Cramp *per* SAK-J; Kirby-le-Soken (19) 17.iii.2000 — P. Bergdahl *per* BG; Ocracouy (**112**) found dead 15.x.1999 — G.W. Petrie *per* MGP
- 1405 *Pleuroptya ruralis* (Scop.) — Killaun (**H18**) larva 24.iii.2000 — KGMB
- 1433 *Cryptoblabes bistriga* (Haw.) — Siccaridge Wood (**33**) 28.vi.2000 — MSP
- 1439 *Trachycera advenella* (Zinck.) — Torry Bay LNR (**85**) 25.vii.2000 — S.C. Smith *per* KPB; Spital of Glen Muick (**92**) 23.viii.2000 — H. Gardner *per* MRY
- 1454a *Dioryctria schuetzeella* Fuchs — Parley Common (**9**) vii.1999 — R.R. Cook, *Ent. Rec.* **113**: 64; Selborne (**12**) 12.vii.2000 — A. Aston *per* JRL, *Ent. Rec.* **112**: 215; Bramfield Woods (**20**) 29.vii.2000 — CWP, *Ent. Rec.* **112**: 215-216.
- 1486 *Apomyelois bistratella* (Hulst) — Max Bog (**6**) 30.vi.2000, genitalia det. — DJG
- 1460 *A. ceratoniae* (Zell.) — Plymouth (**3**) larvae on pomegranate 6.xi.1999, moths bred, previously unrecorded foodplant — RJH
- 1462 *Pempeliella dilutella* ([D. & S.]) — Torry Bay LNR (**85**) 10.vii.1999 — S.C. Smith *per* KPB; Ballytoohey More (**H27**) 15.vii.2000 — KGMB
- 1473 *Ephestia elutella* (Hübner) — Stony Stratford (**24**) 1.vii.2000, det. DVM — M. Killeby *per* DVM
- 1474 *E. parasitella* Staud. — Hilcot End (**33**) 27.vi.2000 — MSP
- 1484 *Phycitodes saxicola* (Vaugh.) — Greenfield (**51**) larvae on *Senecio jacobaea* 26.viii.2000 — I.F. Smith *per* SHH; Lady's Island Lake (**H12**) 14.viii.2000; Clare Island (**H27**) 16.vii.2000 — KGMB

PTEROPHORIDAE

- 1492 *Oxyptilus laetus* (Zell.) — Livox Farm (**35**) 26.vi.2000, det. C. Hart — RGG
- 1494 *Capperia britanniodactyla* (Gregs.) — Queen's Wood, Dymock (**36**) 7.vii.2000 — MWH & MRY
- 1501 *Platyptilia gonodactyla* ([D. & S.]) — Torry Bay LNR (**85**) 31.viii.1999 — S.C. Smith *per* KPB
- 1502 *P. isodactylus* (Zell.) — Magor Marsh (**35**) 27.viii.2000 — NRL
- 1506 *Stenoptilia millieridactyla* (Bruand) — Littleborough (**59**) 24.vi.2000, genitalia det. SMP — I. Kimber *per* SMP

- 1507 *S. zophodactylus* (Dup.) — Cullenstown (**H12**) 13.viii.2000 — KGMB, *Ent. Gaz.* **52**: 208, **First confirmed Irish record.**
- 1520 *Hellinsia osteodactylus* (Zell.) — Haugh Wood (**36**) 12.vii.2000 — MWH & MRY
- 1522 *Euleioptilus tephrodactyla* (Hübner.) — Seefin (**H7**) larva on *Solidago* 22.ix.2000 — KGMB
- 1519 *E. carphodactyla* (Hübner.) — Potteric Carr (**63**) 4.vi.2000, genitalia det., furthest north record — RIH

Correction to the 1999 Review

- 327 *Phyllonorycter cydoniella* ([D. & S.]) — the records for H23 and H25 have been withdrawn by KGMB, that for H25 having been bred and produced *P. blancardella* (Fabr.) and that from H23 not having been bred and therefore deemed an unsafe identification.

Leptidea reali NOT known from Britain

Two recent papers (Nelson, Hughes, Nash & Warren, *antea*: 97-101; Nash, Hughes, Nelson and Warren, 2001. *Atropos* **14**: 12-15) have essentially the same title including the words: “*Leptidea reali* Reissinger – A Butterfly new to Britain and Ireland”. In both cases the authors make it clear in the body of the paper that there are no confirmed records of *L. reali* from Britain, but only from Ireland. It appears that in choosing the titles, the authors have confused “Britain” and “United Kingdom”. In so doing there is grave danger that (despite what the papers actually say) abstracting journals will, based on title alone, record that *L. reali* is known from Britain. As yet, at least, this is not the case. – DAVID CORKE, Tye Green House, Wimbish, GB-Essex CB10 2XE.

EDITORIAL COMMENT: I fully accept the validity of the criticism levelled by Dr Corke as far as the paper by Nelson, Hughes, Nash & Warren (2001) is concerned, and accept editorial responsibility for not spotting this gaff (though in my defence the referees did not draw it to my attention). I also regret considerably that an essentially identical paper appeared in another publication (albeit not one whose main papers are peer-reviewed) a short space of time after it had appeared in these pages. It may be timely to remind authors of the rules. A degree of flexibility is possible with regard to the Notes in this journal, and certainly snippets of information from these pages may be freely taken for review/summary articles elsewhere, if the customary acknowledgements to source are given. However, authors are reminded that full papers are accepted by this journal (and almost all other journals) on the basis that they are not being offered for publication elsewhere; editors of other journals are respectfully requested to avoid the duplication of papers that have already appeared in print elsewhere. This is not only courteous, but also avoids this journal incurring unnecessary production costs whilst neatly avoiding infringement of copyright regulations by the second publication.

***Duponchelia fovealis* Zell. (Lep.: Pyralidae) and other moths new to Hertfordshire during 2001**

To my considerable surprise, a single example of the pyralid *Duponchelia fovealis* Zell. appeared at one of my mv traps set at Hexton Chalk Pit, Hertfordshire (a Herts. & Middlesex Wildlife Trust Nature Reserve), on 20 October 2001. Clark (2000. *Atropos* 10: 20-21) notes that there were five published records of this species in Britain and mentions an unpublished sixth. Langmaid (*antea*: 253) lists four records in year 2000 (of which one is the unpublished record mentioned by Clark), bringing the total to nine. Thus, the Hertfordshire moth may be the tenth British example, though I write this note prior to the 2001 British Entomological & Natural History Society's Exhibition, where it is eminently possible that more may be exhibited! The moth was skilfully netted by Duncan Fraser, in direct response to my urgent command "somebody catch that moth" to the assembled members of the Herts. Moth Group! Clark (*op. cit.*) stated, in relation to the five previously published records, that "It is likely that most, if not all, of the records have originated from specimens arriving on imported plant material". Whilst not denying that some British specimens may originate in this manner, I can find little evidence to support his assertion that all are likely to do so. My Hertfordshire example shared the night with a Dark Sword-grass *Agrotis ipsilon* (Hufn.) and a Gem *Orthonamma obstipata* (Fabr.) – both known as primary immigrants – and I have no reason at all to doubt that my *fovealis* does not also fall into this category.

D. fovealis was one of several new moths added to the Hertfordshire fauna during the current year, and it seems worth summarising these here. The first came in March, when a micro sent to me by Paul Clack for identification turned out to be *Caloptilia azaleella* (Brants). It was taken in his house at Rickmansworth in the south-west of the county.

Very little else of interest happened in the first six months of 2001. The abysmal weather conditions were doubtless at least partly responsible for one of the poorest years on record for moth numbers, and many people reported severely depressed catches in their garden moth traps. To add to the misery, Foot & Mouth Disease kept us out of the countryside. However, at the start of July the weather suddenly turned hot and sunny, and moths started to appear in the traps. These were boosted by a number of immigrant species, of which two were new county records. At Balls Park, Hertford, on 6 July, a single Red-necked Footman *Eilema rubricollis* (L.) appeared in a Skinner-pattern trap; the next night two Cloaked Pugs *Eupithecia abietaria* (Goeze) put in an appearance in a trap at Whippendell Wood, Watford. To her surprise, Mrs Joan Thompson returned home to nearby Oxhey after this Herts Moth Group recording trip to find another example in her garden trap.

Immigrants and adventives are all jolly nice, but finding new or overlooked resident species is far more appealing to those interesting in recording rather than mere collecting. At the Herts Moth Group recording trip to Ashridge on

4 August, Charles Watson spent half an hour looking for leaf mines before darkness fell. When I looked at these for him on the next day, I identified several examples of mines of *Stigmella nylandriella* (Tengst.) (= *aucupariae* Frey.) on rowan *Sorbus aucuparia* leaves. Surprisingly, this species too was a first for Hertfordshire. At Hexton Chalk Pit, on 18 August, two oecophorids new to the county list were attracted to m.v. light. The first – *Agonopteryx pallorella* (Zell.) – is associated with knapweed *Centaurea* and saw-wort *Serratula tinctoria*. The second – *Depressaria daucella* (D.& S.) – is associated with water dropworts *Oenanthe* spp. and whorled carraway *Carum verticillatum*.

Lancashire Moth recorder Steve Palmer visited his mother's garden at Datchworth on 19 August and amongst the many moths he took was a male *Phycitodes maritima* (Tengst.) – confirmed by genitalia dissection. This is another addition to the Hertfordshire fauna.

On 18 October, I found mines of the nepticulid *Ectoedemia quinquella* on oak leaves at Gilston – two metres inside the county boundary at the point where it adjoins North Essex at Harlow. This seems to be an extremely local species, though it is already known from adjacent Essex.

Finally, back at Hexton Chalk Pit, on 20 October (the same night as the *D. fovealis*), two female examples of the yponomeutid *Zelleria hepariella* Stt. appeared in one of the light traps – another species new to the county.

Primarily as a result of the weekly recording trips held by the Herts Moth Group, the Hertfordshire moth list has now risen to an all-time total of 1487 species, comprising 883 “micros” and 604 “macros”. Those who have access to the Internet can read the Hertfordshire county list at <http://www.hertsmothgroup.org.uk>. – COLIN W. PLANT, 14 West Road, Bishop's Stortford, Hertfordshire CM23 3QP (E-mail: colinwplant@ntlworld.com).

Further records of Hoary Footman *Eilema caniola* (Hb.) (Lep.: Arctiidae) on Anglesey

On 28 August 2001, while light-trapping at Church Bay Anglesey, I was delighted to find that the first moth to arrive was a pristine Hoary Footman *Eilema caniola*. This was not altogether a great surprise, since I was aware that Mike Hull had recorded two examples of the same species at light, two nights earlier, on 26 August 2001.

Both my own record and those of Mike Hull, combined with recent records from South Stack by Adrian Wander (*Ent. Rec.* **113**: 207; **112**: 251), indicate that Hoary Footman is indeed resident on Anglesey, particularly on the west coast. As the moth has now been recorded from two separate sites on two occasions, it would be interesting to determine how widespread it actually is on Anglesey. – GRAHAM JONES, 127 Highfield Road, Birkenhead CH42 2BX.

**THE STRIPED LYCHNIS MOTH *SHARGACUCULLIA LYCHNITIS*
(RAMBUR) (LEP.: NOCTUIDAE): A REVIEW OF ITS
DISTRIBUTION IN BUCKINGHAMSHIRE (VC 24) DURING 2000**

PETER HALL

Melanthia, Chiltern Road, Ballinger Common, Great Missenden, Buckinghamshire HP16 9LH.

THE STRIPED LYCHNIS moth *Shargacucullia lychnitis*(Rambur) is listed by Waring (1993) as a Nationally Notable (Na) species (recorded or expected in between 15 and 30 ten-kilometre squares within Britain). Originally placed on the “middle” list of the UK Steering Group report (HMSO, 1995), the moth now resides on the re-structured “priority species” list (UK Biodiversity Group Report, 1998). In recent years, surveys for the moth within Buckinghamshire have occurred at regular intervals (Waring 1992, Albertini *et al.* 1997, Halls 1997a, Hall 1998, 1999, 2000). During 2000, a further large-scale survey was undertaken to review the moths’ current status within the county. In total, during a rather frenetic period at the end of July, some 18,916 mullein plants were inspected revealing 2,396 larvae.

These surveys reveal its presence in nine ten-kilometre squares within Buckinghamshire (Figure 1) and provide the basis for the Species Action Plan for the county (Halls 1997b), which is undertaken with the assistance of Buckinghamshire County Council Environmental Services along with input from Butterfly Conservation, The National Trust and the Berks, Bucks, and Oxfordshire Wildlife Trust.

Results

Larvae were only found on *Verbascum nigrum* and the hybrid *V. x-semialbum*; the cool, wet summer of 2000 resulted in some very healthy plants. The survey was carried out during the last week in July, but it was apparent from the start that the larvae were late in appearing. Larvae found on the flower spikes varied from first to final instar, but the majority were small and, as such, were extremely difficult to locate as they were often well-hidden between the florets on the flower spikes. This slowed down the speed with which numbers could be reliably counted and in all instances where sites were re-visited the numbers of larvae were higher than on the first visit. Overall numbers were, therefore, possibly up to 10% higher than shown in the results.

A number of new sites was located for both foodplant and larvae including a large core area near High Wycombe. The known range was also extended with first sightings of larvae in the south-east of the county near Hedgerley.

Table 1 groups the larvae and foodplant results into habitat type enabling preferred habitat types to be revealed for the moth. It enables populations within these habitat types to be compared for relative successes.

Roadside verges still show the best ratio of larvae to plants of all habitats emphasising the importance of this habitat for the long-term survival of the moth. The roadside verge provides the corridor through which the moth can

either spread or mix genes with adjacent colonies. Verge management regimes are now structured so that mullein plants can be carefully avoided during the mowing processes and the final wide cut occurs shortly after most of the larvae have pupated by mid-August.

Habitat Group	Total Plants	Total Larvae	Ratio P/L
Road Verges	2,931	664	4.4: 1
Fields & Margins	4,523	784	5.8: 1
Chalk Grassland	8,536	707	12.1: 1
Woodland	1,518	56	27.1: 1
All	18,916	2,396	7.9: 1

Table 1. Numbers of foodplants and associated numbers of larvae, grouped by habitat type.

The results were further grouped into orders of importance and a number of “priority action sites” were identified. These are group sites that support large colonies of larvae (around which smaller colonies exist). Interestingly only five such group sites were found. The threshold set for qualification was one hundred larvae. Next were “strategic action sites” where between 50 and 100 larvae were located. Finally “development sites” were identified. These are sites where there is a good potential to either establish colonies or expand larval numbers.

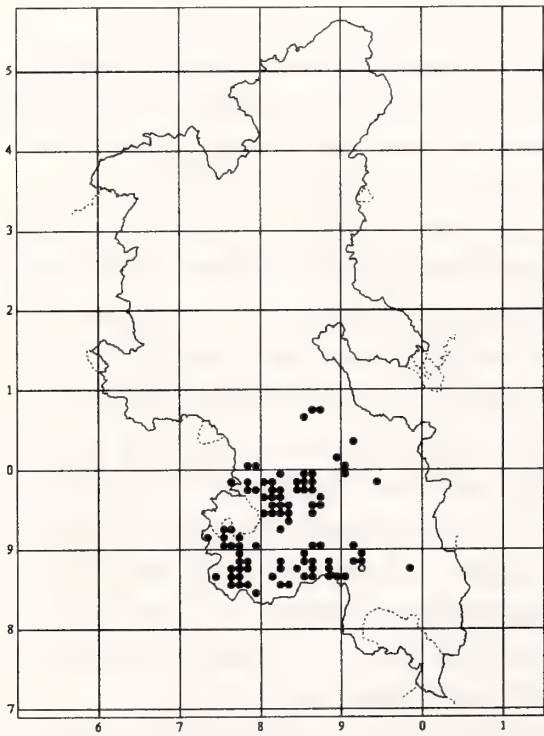


Fig. 1. 1991 - 2000

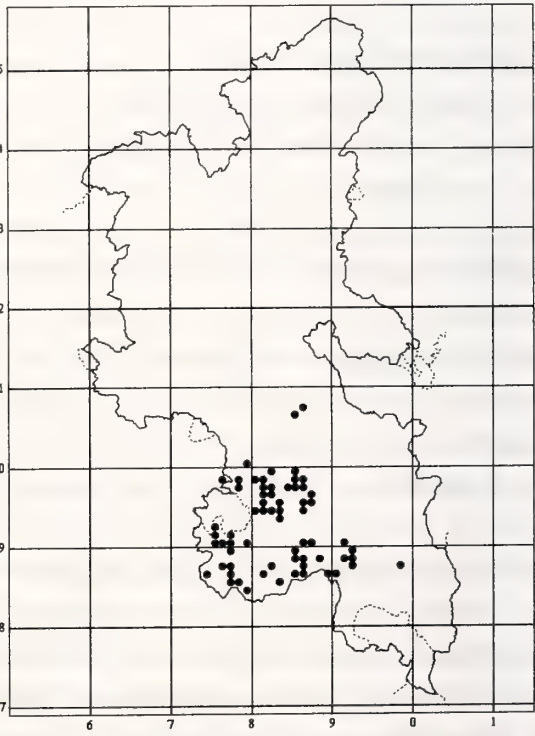


Fig. 2. 2000

Figs. 1 and 2. Striped Lychnis Moth: Survey results for Buckinghamshire VC 24.

The results for 2000 show that the moth populations are fairly stable (Fig. 2). The graph showing population trends (Fig. 3), does indicate a slight fall in larval numbers relative to previous surveys, but this is most probably due to the difficulties in locating all the small larvae within the flower spikes. This overall picture is very encouraging particularly when much of the foodplant is located in rather precarious habitats.

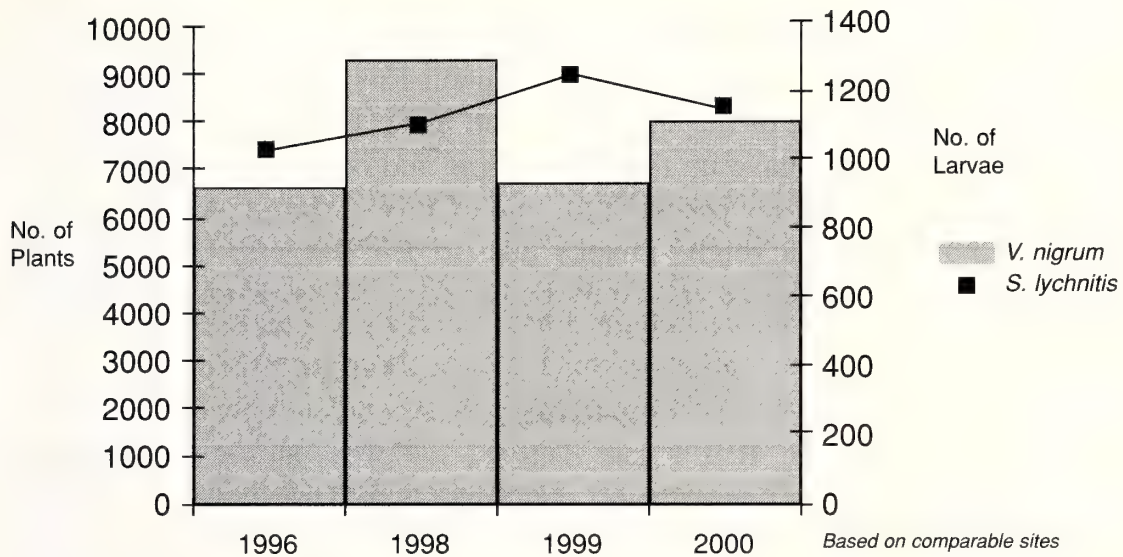


Fig. 3. Population trends in larvae and foodplant of the Striped Lychnis in Buckinghamshire from 1996 to 2000.

Group Habitat results 2000 Survey

Table 1 reveals just how important the roadside verge is to the moth, with one larva on every 4.4 plants. This appears to be the preferred habitat. In all instances of high larval numbers, the habitat was similar. Large concentrations of foodplant in sunny aspects, with little competition from other plants, and in this respect the roadside verge reflects this habitat. If the cutting regimes are just right, then the foodplant grows in the preferred conditions, especially if the verge is cut leaving the plant in a “stand alone” situation afterwards.

Action

Besides the efforts with the cutting regimes along roadside verges, a number of other projects are underway too. Seed has been collected from the foodplant at certain sites and after scrub clearance work during Winter months, areas have been seeded with the local seed to help establish bigger colonies of foodplant. This has seemingly worked and increased larval numbers at two such sites have reflected this successful strategy. Wherever road works occur within the moths distribution range during the Winter, then seeding may also occur. Additionally seedlings are grown in greenhouses over winter for planting out at sites to swell plant numbers.

Future Surveys

The surveys of 1996, 1998, 1999 and 2000 have shown that the overall position is sound for the moth. With this information in hand, it has been decided that future surveys will occur less frequently and the next major survey has been targeted for either 2003 or even as late as 2005. In between times, priority action sites will be monitored annually and the search for new sites will occur.

Acknowledgements

Thanks go to Buckinghamshire County Council Environmental Services for their continued support of the species' action plan. Special thanks go to the following people who gave up their spare time and holidays to help with the surveying during a ten day period at the end of July – Martin Albertini, Julia Carey and Andrew McVeigh. Thanks also to Bill Havers, Ched George, Trevor Hussey, Alan Gudge and Andy Foster for additional records supplied for specific sites.

References

- Albertini, M., Damant, C., Hall, P. and Halls, J., 1997. The Striped Lychnis Moth, *Shargacuculia lychnitis* (Rambur 1833) (Lepidoptera: Noctuidae) – a review of its distribution in Buckinghamshire during 1996. *Entomologist's Gazette* **48**: 157-163.
- Hall, P., 1998. The Striped Lychnis Moth, *Shargacuculia lychnitis* (Rambur 1833) (Lepidoptera: Noctuidae) – a review of its distribution in Buckinghamshire. *Buckinghamshire Invertebrate News* number 8: 1-6.
- , 1999. The 1998 Species Action Plan Sites Survey: The Striped Lychnis Moth. *Buckinghamshire Invertebrate Group Bulletin* 9: pp. 6-18.
- , 2000. The Striped Lychnis Survey. *Buckinghamshire Invertebrate Group Bulletin*, Number 10: 14-27.
- Halls, J. 1997a. Local Biodiversity Action Plan for the Buckinghamshire Chilterns: Striped Lychnis moth *Cucullia lychnitis* Rambur. *Hyder Consulting Ltd.*
- Halls, J. 1997b. Striped Lychnis Monitoring 1997. *Hyder Consulting Ltd.*
- HMSO, 1995. *Biodiversity: The UK Steering Group Report, Vol. 2: Action Plans*. HMSO, London.
- Joint Nature Conservation Committee. 1996/7. *Biodiversity: The UK Action Plan/JNCC Annual Report '96/'97*.
- Waring, P. 1992. The Striped Lychnis Moth, *Cucullia lychnitis* - a review of its distribution and status in Britain. *Entomologist's Gazette* **43**: 179-205.
- Waring, P., 1993. Annotated list of the macro-moths in the British Isles, showing the current status of each species. *National Moth Conservation Project News Bulletin* Number 5: 10-23.
-
-

Lang's Short-tailed Blue *Leptotes pirithous* (L.) (Lep.: Lycaenidae) and other butterflies on Madeira Island

Further to my record of *Leptotes pirithous* on Fuerteventura, Canary Islands on 30 March 1998 (*Ent. Rec.* **110**: 289-290) we report that this butterfly was observed on Madeira for the first time on 25 August 2001. We found it to be quite common in the Botanical Gardens in Funchal, ovipositing on a violet flowered Runner Bean *Phaseolus* sp., *Teline maderensis* and *Plumbago capensis*. The following day we found it at four separate sites both above and below Poiso, between 1400 and 1450m; typically in this area it was found in sheltered hollows near flowering gorse bushes *Ulex europea*, always flying with the Long-tailed Blue *Lampides boeticus* (L.) which necessitated careful observation to avoid confusion. We were able to photograph *L. pirithous* and take a short series of males and females. Unfortunately lack of time prevented us from seeing if it was more widely distributed, however this record does confirm an extension of its range in the Atlantic islands.

During our visit we noticed that *Danaus plexippus* (L.) was widespread, some individuals reaching up to 1500m, with ova and larvae found on both *Asclepias curassavica* in the gardens of Funchal and on *Gomphocarpus fruticosus* as high as 1300m above the Encumeada Pass. We also found that *Catopsilia florella* Fabricius had now become quite widespread in Funchal after its first sighting in 1999 by Aguiar (*Bocagiana* **199**: 1-4) with ova and larvae on most *Cassia didymobotrya* bushes that we investigated and several sightings of the adults. It is also pleasing to report that *Hipparchia aristaeus maderensis* Bethune-Baker was extremely abundant on the Paul da Serra plateau. At Bica da Cana and Estanquinhos at 1560m, they rose in dozens with each step through the grass or along the road, but unfortunately many were being killed by passing traffic.

Since returning from Madeira we have learnt that Martin Gascoigne-Pees has also a new record of *L. pirithous*, from Lanzarote in February 2000, details of this and his other new records and observations are to be published shortly.— D. HALL, 5 Curborough Road, Lichfield, Staffordshire WS13 7NG and P. J. C. RUSSELL, Oakmeadow, Wessex Avenue, East Wittering, West Sussex PO20 8NP.

What is happening to the Small Tortoiseshell *Aglais urticae* (L.) (Lep.: Nymphalidae)?

Many of us must have noticed a drastic reduction, amounting in some areas to a near-disappearance, of what has long been regarded as our commonest British butterfly. There may indeed still be favoured parts of the country where it is as numerous as ever: that I am in no position to deny. Only for my own district can I speak positively — yet with a strong impression that things are not greatly different in many other parts. One can but hope that this familiar species (whose beauty so charmed the late Richard South) is not

going the way of its larger cousin *Nymphalis polychloros* as a member of our fauna; but there are disturbing signs that the phenomenon is far from being peculiar to our country.

Mr P. F. Whitehead, to whom I mentioned the matter in correspondence, writes that in his part of Worcestershire (Persore district) the species' numbers appeared average up to 1996; after which a marked decline set in, especially noticeable in 2000. Mr Whitehead also kindly sent me a copy of an important paper by J. and M. Kulfan and P. Zach, recording a widespread decline of *A. urticae* in the Slovak Republic between 1993 and 1995, including local extinctions. So far no acceptable reason for these failures presents itself: do readers have any ideas ?— A. A. Allen, 49 Montcalm Road, London SE7 BQG.

***Cacyreus marshalli* (Butler) (Lep.: Lycaenidae) in Corsica**

The recent rapid spread of the South African lycaenid *Cacyreus marshalli* – the so-called Geranium Bronze – to various Mediterranean localities and substantially northwards may mean that my observation of a single adult in stunningly fresh condition nectaring on lavender in the grounds of the Hôtel Saint Cristophe at Calvi in north-west Corsica on 4 August 2001 is of little real consequence. However, it seems worth putting forward what appears to be possibly the first record from Corsica. The small quantity of planted *Pelargonium* that I could find in the immediate vicinity (about 30 metres distant) looked to be in good condition, but it was not possible to search it thoroughly— MARK R. SHAW, National Museums of Scotland, Chambers Street, Edinburgh EH1 1JF.

***Cosmopterix orichalcea* Stainton (Lep.: Cosmopterigidae), a resident species on the Isle of Rum, Scotland**

On 26 June 1967, Peter Wormell, then warden of Rum National Nature Reserve, took a single specimen of *Cosmopterix orichalcea* in a patch of coarse marshy grassland within a recently enclosed area at Harris, Isle of Rum (Pelham-Clinton, 1986 *Ent. Rec.* **98**: 143). No further Scottish specimens have been reported. During the Scottish Entomologists' Meeting on the Isle of Rum (VC 104) from 26 August to 2 September 2000, many leaf-mines were found in *Anthoxanthum odoratum* (Sweet Vernal Grass). They occurred in two widely separated localities on the island, namely Kilmory (O.S. grid reference NG 3606) and Loch Scresort (NM 4099). In all cases the grass was sited out of reach of grazing animals; in the former case on a vegetated ledge of a small cliff and in the latter on the top of a steep-sided hummock just above high-water mark. The mines were initially an enigma, but comparison of them with drawings (prepared by Jäk Korster for *Moths and Butterflies of Great Britain and Ireland* **4** to be published by Harley Books) strongly suggested that the

culprit was *C. orichalcea*. The larvae passed the winter either in a longitudinally rolled grass-blade or, less frequently, within the mine. In early April they were brought in, from the outside garden shed, into a cool basement to enable easier observation. Pupation occurred in the overwintering location between 24 and 28 April 2001. In due course, several incredibly beautiful imagines of *C. orichalcea* emerged between 10 and 15 May 2001. No parasites were reared, nor were any signs of them observed. The species has obviously been resident on the Isle of Rum for some time and probably also occurs at other sites along the west coast of Scotland.— K. P. BLAND, National Museums of Scotland, Chambers Street, Edinburgh EH1 1JF.

New food-plant for *Leucoptera orobi* Stainton (Lep.: Lyonetiidae) from the Isle of Rum, Scotland

Three leaf-mines in *Trifolium pratense* (Red Clover) were collected for me by David Horsfield in Kinloch Glen (O.S. grid reference NG 3900), Isle of Rum (VC 104) on 31 August 2000. The mines formed dark brown blotches and I initially ascribed the mines to *Agromyza nana* Meigen, 1830 (Diptera: Agromyzidae) and so was very surprised when typical *Leucoptera*-like cocoons appeared. On 13 May 2001 a single male *Leucoptera orobi* emerged. Its identity was confirmed by examination of the male genitalia. The form of the bulbous basal portion of the aedeagus corresponded to that illustrated for *orobi* by Pierce and Metcalfe (1935. *The Genitalia of the Tineid Families of the Lepidoptera of the British Isles*) and Buszko (1981. *Klucze do Oznaczania Owadow Polsk* **27**, part 27). The names *L. orobi* and *L. lathyriifoliella* (Stainton) have recently been synonymised by Mey (1994. *Deutsche Entomologische Zeitschrift* **41**(1), 173-234) but this synonym requires reappraisal (B. Wikström *pers. comm.*). Not only is this the first record of this species from the west coast of Scotland, but Red Clover appears to be an unrecorded food-plant in Britain.— KEITH P. BLAND, National Museums of Scotland, Chambers Street, Edinburgh EH1 1JF.

***Nemapogon variatella* (Clemens) (Lep.: Tineidae) imported in Spanish mushrooms, and a larval description**

On 8 January 2001 my wife Pat found a small moth flying around in our spare bedroom, which was being used as a temporary storeroom while a new kitchen was being fitted; I was unable to identify it even to family level. The following day, in the same room, she discovered a further eight live specimens of the same species, one of which was sent to Dr P. H. Sterling who immediately recognised it as being *Nemapogon variatella* and confirmed his identification with an examination of the genitalia.

Although in the wild this species is associated with bracket fungi, and in recent years Ian Sims has reported rearing it on two occasions from *Piptoporus betulinus* found at Burnham Beeches near Slough (*Ent. Rec.* **109**: 134; *Br. J. ent. nat. Hist.* **13**: 244-245), indoors it is associated with stored vegetable products and Dr Sterling suggested that a search should be made of any that were present. In the event, this was no easy task but Pat eventually recalled buying some dried mushrooms in the Pyrenees in September 2000 and, once located, they indeed proved to be the source. The cellophane packet containing the mushrooms had many small holes in it, some with a protruding pupa, and sitting on the top of the packet were three live moths. Visible through the cellophane were many live larvae, numerous pupae and a number of both live and dead adults. The packet was helpfully labelled *Marasmius oreades*, which is the Fairy Ring Champignon. Popular in Victorian times when it was known as Scotch Bonnet, this mushroom has in recent years become available dried in packets in many supermarkets (Pegler, 1999. *The Easy Edible Mushroom Guide*. Aurum Press). The packet was opened and placed in a Perspex container where over the course of the following five weeks adults continued to emerge, eventually to reach a total of 230 moths from 25 grams of dried mushrooms. Some larvae were sent to Dr Sterling who successfully reared them on mushrooms which had been grown on horse manure specifically for the purpose and then, furtively, dried in his wife's oven.

The larva has previously been described only as resembling that of *Nemapogon granella* (Heath & Emmet, 1986. *The moths and butterflies of Great Britain and Ireland* **2**: 178, Harley Books). However, there may well be differences in the shape and size of the prothoracic plates which help determine the species on larval characters (Sterling, pers. comm.).

The larva is described as follows (P. H. Sterling): head orange-brown, mouthparts reddish brown; prothoracic plate mainly translucent with small subtriangular pale brown marking either side of dorsum posteriorly; body dull creamy whitish, pinacula concolorous; anal plate translucent; thoracic legs translucent, prolegs concolorous with body.

A larval description of another member of this genus, *Nemapogon wolffiella* Karsholt & Nielsen, has previously been published by R. J. Heckford (*Ent. Gaz.* **48**: 193) and the literature concerning *Nemapogon variatella* has recently been extensively reviewed by R. J. Surry, M. S. Parsons & P. H. Sterling (in press. *A review of the scarce and threatened incurvariid, prodoxid, adelid, heliozelid, psychid, tineid and ochsenheimeriine moths of Great Britain*. JNCC).

I am grateful to Phil Sterling for allowing me to include his larval description in this note and for his continuing help and encouragement.— P. M. COSTEN, La Broderie, La Claire Mare, St Peters, Guernsey GY7 9QA (e-mail: pcosten@guernsey.net).

BUTTERFLIES (HESPERIOIDEA, PAPILIONOIDEA) ON ISLANDS IN THE AEGEAN ARCHIPELAGO: A CORRECTION, ADDITIONS, AN AID TO IDENTIFICATION AND A CAUTIONARY TALE¹ROGER L. H. DENNIS, ²JOHN G. COUTSIS AND ³ALAIN OLIVIER¹*Department of Entomology, The Manchester Museum, Oxford Road, Manchester M13 9PL, UK.
(Address for correspondence: 4 Fairfax Drive, Wilmslow, Cheshire SK9 6EY)*²*4 Glykonos Street, GR-10675, Athens, Greece.*³*Luitenant Lippenslaan 43 B14, B-2140 Borgerhout (Antwerpen), Belgium.*

SINCE THE PUBLICATION of our papers on the butterflies in the Aegean archipelago (Dennis et al. 2000, 2001), some additional species have arisen for a number of the islands (Thásos, Híos, Límnos, Santoríni and Síros) and one species has been corrected (withdrawn) for Crète. Also, a useful reference for literature from Crète has been brought to our notice.

The correction is for the specimen reported to be of *Polyommatus thersites* (Cantener) [1835] on Crète in the collection of Mr C. I. Rutherford. Although this record was included in our paper, two of the co-authors, with long experience of working on butterflies in the Aegean (JGC and AO), doubted the validity of the identification. Mr Rutherford has kindly allowed one of us (JGC) to examine the genitalia of the specimen that is now demonstrated to be that of *Polyommatus icarus* (Rottemburg, 1775). Drawings of the genitalia of the two species are presented that should facilitate identification of *P. thersites* in future.

Mr Rutherford initially took the specimen for *Polyommatus icarus* in 1983 as it was observed late in the year and at higher altitude than he was familiar with. Later on, he realised that the butterfly matched details described by Pamperis (1997) for *P. thersites*. This book reported the butterfly for the island and therefore it seemed very likely to Mr Rutherford that his specimen was in actual fact *P. thersites*. However, it is clear that the adult wing attributes generally advised as distinguishing the two species, particularly the lack of forewing underside basal black spots (Pamperis, 1997), are inadequate identification markers for *P. thersites*. In Crète, *P. icarus*, very often lacks the forewing underside basal spot (Coutsis, pers. obs.). This erroneous record is valuable for demonstrating the importance of recorders taking voucher specimens to be examined by those specialists familiar with particular taxa.

Although Mr Rutherford frequently dissects insects for identification purposes, in this case no appropriate guide existed. Although illustrations of the genitalia of both species appear in Higgins (1976: 159 and 166; Tremewan, pers comm.), these are not particularly clear in distinguishing the two species. This situation is now rectified by the drawings herein made by JCG. The Cretan specimen is a *P. icarus* primarily by virtue of the fact that its aedeagus has a slender distal end in dorsal view, as is the case with all other members of the subgenus *Polyommatus* of the genus *Polyommatus*. In *P. thersites* this part of the aedeagus is bulbous in dorsal view, as is the case with

all members of the subgenera *Agrodiaetus*, *Lysandra* and *Neolysandra* of the genus *Polyommatus*. Omitting all other character differences between the two, the above mentioned difference is in itself sufficient for differentiating *P. icarus* from *P. thersites*.

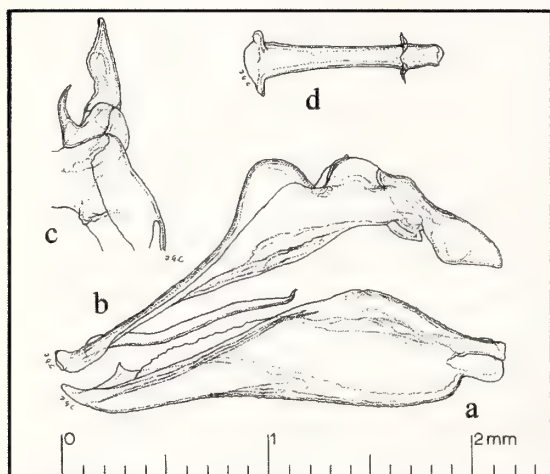


Figure 1

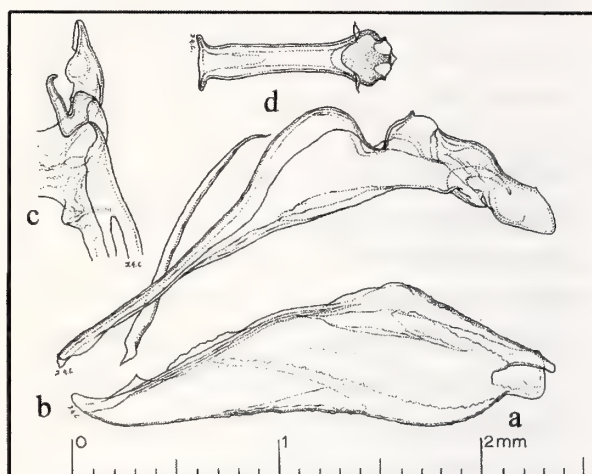


Figure 2

Figure 1. Genitalia of male: **1.** *Polyommatus icarus* (Rottemburg, 1775), Greece, Crète, Potamí 3km W of Ierápetra on the Lasíthi plateau, 1200m. (October 1983).

Figure 2. *Polyommatus thersites* (Cantener, [1835]), Iran, Azarbayjan-e, Dugijan, 30km NE of Marand, 2000m.

In both figures: **a.** Lateral view of outer face of left valva; **b.** Lateral view of left side of genitalial apparatus with valvae and aedeagus removed; **c.** Ventral view of right labis and falx together with right half of tegumen; **d.** Dorsal view of aedeagus.

This kind of error, made in the past, also explains why it has been necessary to omit some references, and some records from references, from our work on the Aegean islands (e.g., Kattioulas [correctly Kattoulas] & Koutsaftikis, 1977; Schmidt, 1989; Pamperis, 1997). However, one useful reference to older publications on Lepidoptera, not mentioned in our paper, is that for the island of Crète (Leestmans, 1988). This does not add any new species for the island but it nicely illustrates the locations from which earlier records have been made. In the same issue is an interesting paper on general aspects of Cretan biogeography (Parent, 1988). We have not included recent observational notes from Crète which do not add to the list of species.

The additions for the island of Híos are the result of detailed, long-term, biodiversity research on the island by Liverpool Museum supported by the Greek Ministry of Agriculture, Department of National Parks and Game Management. This licensed work is being undertaken by Mr Mike Taylor and his colleagues from the Entomology Section of the Liverpool Museum, National Museums and Galleries on Merseyside and from the Manchester Museum. Two new butterfly species have been added to the Híos list, *Gegenes*

annually since 1996; voucher specimen taken at Káto Faná in south Híos in May 1996; Mr Mike Taylor). Possible additions for Thásos are discussed fully by Dr Adrian Fowles at his website [<http://www.thasos.moonfruit.com>]. He mentions additional species to the list of Holloway (1996), one of which (i.e. *Anthocharis gruneri* Herrich-Schäffer, [1851]) has been confirmed (Abadjiev, 2000). Further possible additions, remaining unconfirmed, appear in Chilton (1999). One of these is *Charaxes jasius* (Linnaeus, 1767), which we predict may be found on the island (Dennis et al. 2001). Additions for Límnos (*Gegenes nostrodamus* (Fabricius, 1793), Santoríni (*Gegenes pumilio* (Hoffmansegg, 1804) and Síros (*Lampides boeticus* (Linnaeus, 1767) and *Leptotes pirithous* (Linnaeus, 1767)) are reported in Coutsis (2001), together with the official report of three other recent records listed in our paper (Dennis et al. 2001). Three of these four new records are predicted by our analysis; *G. nostrodamus* had too low an incidence on the islands from which to make predictions.

The message in the records is that, for all the need to take care to avoid unnecessary collecting, it is absolutely essential that voucher specimens are taken of individuals believed to be, and reported to be, of species new to island lists. Without this material, the observations simply cannot be accepted as being valid records for biogeographical research or as adequate data for conservation purposes, regardless of how striking the organisms are known to be. Extraordinary as it may seem, in the UK, observations have been reported for prominent nymphalids such as *Vanessa atalanta* (Linnaeus, 1758) and found later from specimen, description or photograph to be something else! Many of the identification characters used to distinguish European butterflies, even though beautifully illustrated (e.g., Pamperis, 1997), have been found to be anything but suitable alternatives, – in many cases quite simply wrong, – to having the specimens for further examination. There is obviously an urgent need for a clear identification guide to European butterflies.

Acknowledgements

Grateful thanks to Ian Rutherford for so kindly sending his specimen to John Coutsis for examination; also, to Mike Taylor and Mike Hull for permitting their records from Híos to be reported in this note, and to Adrian Fowles, CCW, Bangor, Gwynedd, for permission to present details of his web site for Thásos. Our thanks to Mr. Ronny Leestmans for drawing our attention to his 1988 paper, as well as that by Parent (1988).

References

- Abadjiev, S. 2000. *Anthocharis gruneri gruneri* Herrich-Schaffer, (Lep.: Pieridae) new for the Greek islands. *Entomologist's Rec. J. Var.* **112**:131-132.
- Chilton, L. 1999. *Plant list for Thásos*. Marengo Publications.
- Coutsis, J.G. 2001. Skippers, butterflies, burnets and harvesters from the Greek island of Límnos, a skipper new to the Greek island of Santoríni and two butterflies new to the Greek island of Síros (Lepidoptera: Hesperioidea, Papilionoidea, Zygaenidae). *Phegea* **29** (1): 9-17.

- Dennis, R.L.H., Olivier, A., Coutsis, J.G. & Shreeve, T.G. 2001. Butterflies on islands in the Aegean archipelago: predicting numbers of species and incidence of species using geographical variables. *Entomologist's Gaz.* **52**: 3-39.
- Dennis, R.L.H., Shreeve, T.G., Olivier, A. & Coutsis, J.G. 2000. Contemporary geography dominates butterfly diversity gradients within the Aegean archipelago (Lepidoptera: Papilionoidea, Hesperioidea). *J. Biogeogr.*, **27**: 1365-1383.
- Higgins, L.G. 1976. The classification of European butterflies. Collins, London.
- Holloway, J.D. 1996. The butterflies (Lepidoptera) of the northern Aegean island of Thásos. *Entomologist's Gaz.* **47**: 143-149.
- Kattioulas [sic!], M. & Koutsaftikis, A. 1977. Lepidopterenfauna der Insel Kythera, I Thiel. *Annls Mus. Goulandris* **3**: 115-120.
- Leestmans, R. 1988. Histoire de l'exploration lépidoptérique de l'île de Crète (Insecta Lepidoptera). *Linneana Belgica*, **XI** (8): 389-413.
- Pamperis, L. 1997. *The butterflies of Greece*. Bastas-Plessas.
- Parent, G.H. 1988. Esquisse Biogéographique de la Crète. *Linneana Belgica* **XI** (8): 344-388.
- Schmidt, E. 1989. Tagfalterbeobachtungen auf Samos. *Ent. Z.*, **99**(17): 249-256; (18): 267-270.
-
-

A second sighting of *Sitaris muralis* (Forst.) (Col.: Meloidae) at Welling in north-west Kent

Recently (*antea*: 25-26) I published the first record of this interesting beetle for a very long time, based on a specimen sighted in the above suburban locality. A second occurrence in the same place just over a year later proves the species to be breeding in the area. I quote (with slight changes) from Mr K. C. Lewis's letter:

"I have seen the beetle . . . again, 21 July 2001, through my binoculars, on the wall of the next-door block of flats, from my window about 15 feet away. There were holes and cracks in the concrete, and a single bee was settled near the largest hole."

Circumstances precluded a photograph, which would have required a telephoto lens. The holes — exit-holes of a *Sitaris* colony? — have now been filled in as part of renovation work; and one can but hope that further colonies exist nearby, in less vulnerably placed.

In my note cited above, *Alpus* (p. 26, line 18) should of course be *Apalus*.— A.A. ALLEN, 49 Montcalm Road, Charlton, London SE7 8QG.

**MIGRATION OF *VANESSA CARDUI* (L.)
(LEP.: NYMPHALIDAE)
THROUGH CYPRUS, MARCH 2001**

EDDIE JOHN

Davies Cottage, Penllyn, Cowbridge, Vale of Glamorgan CF71 7RQ.

E-mail: eddie@grayling.dircon.co.uk

THE STRONG MIGRATORY capability of *Vanessa cardui* is well documented (Larsen, 1988; Dennis, 1993; Ackery *et al.* 1995). Williams (1970, and in Common & Waterhouse, 1981) records a specimen of *V. cardui* captured about 800 km out to sea in the Indian Ocean, further confirming the species' ability to endure long periods of flight. Common & Waterhouse (1981) refer to the possibility of Australian specimens originating in Africa while Larsen (1984) describes *V. cardui* as the most widely distributed of all the world's butterflies.

The accumulation of large numbers of *V. cardui* in Cyprus is not uncommon (C. Makris, pers. comm.), yet there appears to be no previously documented account of mass movement through the island. R. Frost and A. J. Stagg (Royal Air Force Ornithological Society 1996) incidentally reported thousands of *V. cardui* migrating north out to sea from Cape Arnaoutis (VD38 – see Fig. 1.) on 22 and 23 April 1995. R. Parker (1983 and pers. comm.) although noting “thousands” of *V. cardui* appearing on the south coast of Cyprus in September 1974, did not detect any associated migratory activity or note any obvious migrants of this species during a three-season stay on the island in the 1970s. John (2000) observed a change of flight pattern involving very small numbers of *V. cardui* in April 1998 when, overnight, a fast, determined northward flight replaced the usual nectaring behaviour. These were believed to be resident specimens adopting migrant activity rather than fresh immigrants, as local numbers of *V. cardui* fell significantly thereafter.

On 14 March 2001, P. R. Flint (pers. comm.) observed approximately 100 *V. cardui* at the tip of the Karpas Peninsula (XE45) but there was no uniform sign of migratory behaviour so it is possible that these, too, formed part of the resident population. Furthermore, the winter of 2000-2001 in Cyprus was wet (P. R. Flint and D. L. Thomas pers. comm.) encouraging prolific growth of *Malva* and *Carduus* and thereby favouring a local build-up of *V. cardui*. Such is the speed and determination of migrating *V. cardui* that detection, even of small numbers, is possible and is unlikely to be confused with the casual flight activity characteristic of a resident population. Indeed, Larsen (1984) refers to the single-minded and atypical behaviour of migratory butterflies that, to an experienced observer, differentiates the specimens from those not partaking in a migration. Not until 18 March 2001 was it beyond doubt that an immigration of substantial numbers of *V. cardui* was taking place over Cyprus.

Observations

18 March 2001

From 09.30 hours on a clear, sunny day Lyndon Thomas, a resident of Episkopi (VD93), noted the passage of unusually large numbers of *V. cardui* through his garden and those of his neighbours. (This was in sharp contrast to an observation received exactly one week earlier when D. L. Thomas, in one of his regular e-mails detailing his butterfly sightings for the day, wrote of six *V. cardui* in his garden that were "... lacking in energy because they allow an approach almost to touching distance before drifting lazily onto the next flower head"). The migrants were flying in noticeable streams, rather than on a broad front, over an area approximately 500 m wide, passing through at a rate of approximately 25 specimens per minute. The area is defined by garden frontage that overlooks a valley facing south-westerly toward Episkopi Bay and the Akrotiri Peninsula (VD92). The migration approached from the south-west and continued north-easterly along the bed of the valley. D. L. Thomas notes the flight as "purposeful, low and fast, only rising to over-fly obstacles in their path, e.g. walls and bushes". Larsen (1984) uses very similar wording in describing the flight behaviour of migrating butterflies: "When they meet an obstacle, such as a house or a wood, they will usually fly over the obstacle rather than round it as a butterfly normally would ...". Ten specimens were caught by D. L. Thomas which upon release immediately rejoined the stream, again flying with the same determination and speed. The migration continued at this level of intensity until 15.30 hours when the flow eased. By 16.00 hours there were no new arrivals and by dusk at 17.30 hours a "wave" of *cardui* was seen around the house, but with none showing any signs of the earlier, frenetic activity.

19 March 2001

Enlisting the assistance of his wife Pat and two friends early the next morning, D. L. Thomas distributed the group over the same 500 m area and identified six, discrete streams of migrating *V. cardui* again following routes along the valley floor. The party observed the flow between 08.00 and 09.00 hours, each counting *V. cardui* for one minute on four separate occasions within the hour, giving a total of 16 x one minute counts. Between 22 and 25 per minute were counted by each observer. Shortly afterwards the same group of four people encountered very similar *V. cardui* activity at Vouni (VD85) about 18 km inland from the sightings at Episkopi. The local topography dictates that different migrating streams were involved, but numbers counted were similar, with 25-30 per minute over a five-hour period seen heading north through a narrow valley. The counts add up to 7,500-9,000 *V. cardui* observed over the peak time (10.00-13.00 hours), after which numbers declined gradually until by 15.00 hours the count became negligible.

To the far south-west, David Whaley also noted many *V. cardui* passing north through his garden in VD45, 9 km north-east of the south-west tip of the island near Paphos. A friend later commented to him that “huge numbers” crossed near the Paphos coast on the same day heading north.

Toward the east Aristos Aristophanous, an enthusiastic butterfly collector, became aware of the migration as he drove from Alethriko (WD45) to Larnaca Airport (WD56) between 07.40 and 08.00 hours. The migration was described as ‘a continuous stream’ and at Alethriko was noted to follow an inland course to the north-west, following a valley. At Larnaca the course of flight was westward, a logical course taking into consideration the local topography.

Roger White also encountered “thousands and thousands” of *V. cardui* between Larnaca and Vavatsinia (WD26) with many becoming road casualties.

Further inland, Yiannis Christofides, a local botanist, observed smaller numbers (“tens in a stream”) flying north, uphill through the village of Platres in the Troodos Mountains (VD86).

The migration was also recorded on the same day in the north of the country by Peter Flint, another resident and bird recorder for northern Cyprus, who also takes a serious interest in butterflies. Alert to the possibility of a migration after his 14 March sightings of *V. cardui* on the Karpas Peninsula, he and his wife Karen quickly became aware of large numbers flying to the north across a track between Livera (VE91) and Cape Kormakitis (VE91). Two, one-minute counts at 10.40 hours, approximately 1.5 km from the tip of the cape, gave 38 and 34 *V. cardui* over a distance of c. 25 m. Another count 1 km further on produced 75 in one minute. (P. R. Flint observed that occasional *V. cardui* flew back across the track and it is possible that these were resident individuals. D. L. Thomas also made a similar observation in noting that the migrating streams of *V. cardui* at Episkopi flew over representatives of the local population that “continued with their foraging as though nothing was going on”). At the cape *V. cardui* were seen to be flying out to sea on a broad front that stretched away to the west and east from this point. A compass bearing confirmed the direction of flight to be due north. Some flew out at low level but many climbed higher as they flew out over the sea, P. R. Flint records. Low numbers of a few other species were seen to accompany the mass departure (see later). At this point, exactly an hour after the first count was taken, two further one-minute checks gave counts of 40 and 45 respectively, suggesting little change in the numbers of departing migrants. The weather was clear, with Turkey visible; wind direction easterly, Force 1-2. However, by 12.00 hours the wind had quickly freshened to Force 3-4 and the passing rate of migrating butterflies had fallen off sharply. In attempting to quantify the migration P. R. Flint reports: “From the counts we made, a very conservative estimate of the rates of crossing the track would be one individual/metre of track/minute. On a 1500 m length of track this gives 1500 individuals/minute, or 90,000/hour”.

20 March 2001

Having witnessed the migration on the previous day, David Whaley and Judy Dawes drove north along the coastline (VD45) above Paphos. At the coast a continuous stream of *V. cardui* were seen flying north toward the tip of the Akamas Peninsula. Later, when on the Akamas ridge at between 400-600 m altitude, *V. cardui* were noted to be flying "generally to the south of west" in the direction of the coast. There is no supporting evidence, but it is possible that upon reaching the coast, the migrating streams followed the coastline north to Cape Arnaoutis. D. Whaley describes the conditions as "fine and clear, temperature around 24°C on the coast, cooler on the ridge. Wind was from the north-west and gusting up to Force 3-4". At 13.30 hours two, one-minute counts of *V. cardui* over a 30 m front on the Akamas ridge gave 67 and 110 specimens respectively, the latter representing the highest count of the passage at any point on the island.

Between 07.30 and 08.00 hours P. R. Flint began three one-minute counts of migrants passing westward through his garden at Kazaphani (WE30) in the north of the island. A maximum count of 75 per minute was recorded at 08.00 hours; other details are given in Table 1. A check nearer the coast (also WE30) gave three counts between 25 and 67 per minute over the next 30 minutes, with all migrants flying west, parallel with the coast, despite being within 200-400 m of the sea. At the coast itself, described as 'a promontory with lowish cliffs' there were far fewer *V. cardui*, ". . . with no obvious concentration there or large scale departure directly towards Turkey". The majority were again observed to be heading west, some even leaving the promontory to fly west over the sea parallel to the coast, while just five were followed through binoculars as they flew out to sea on a west-north-west heading. Once again, by lunchtime the migration had fallen away significantly.

21 March 2001

By this date, numbers of migrants were lower and reports were only received from P. R. Flint. Garden counts between 07.00 and 08.00 hours gave numbers ranging from two to 12 per minute. Direction of flight was westerly. A visit later that morning to the Karpas Peninsula in the east, produced higher counts at Galateia Lake (WE91). Here, migrant *V. cardui* were counted at 24 per minute (10.55 hours) and 32 per minute (11.15 hours) crossing the lake toward the west and at 11.20 hours, 45 per minute were counted as a stream of *V. cardui* followed a road verge south-westerly along the edge of the lake.

25 & 26 March 2001

Numbers of *V. cardui* fell further over succeeding days but migrant activity was still evident. P. R. Flint recorded 12 per minute in one count in his garden on 25 March and nine per minute in another count on 26 March.

Mixed migrations

V. cardui normally migrates alone but has been recorded in association with a migration of *Danaus chrysippus* (Linnaeus, 1758) (Meinertzhagen in Larsen & Nakamura 1983). A. J. Stagg (Royal Air Force Ornithological Society, 1996) observed *Vanessa atalanta* (Linnaeus, 1758) migrating northwards from Cape Arnaoutis on three separate occasions on 22 March 1995, along with thousands of *V. cardui*. In the migrations through Cyprus in 2001, very small numbers of *Pieris brassicae* (Linnaeus, 1758), *Colias crocea* (Geoffroy, 1785) and *Vanessa atalanta* were observed by P. R. Flint (pers. comm.) being drawn along with hundreds of thousands of *cardui* as they left the north coast of Cyprus on 19 March. It is conceivable that this was an 'involuntary' emigration by these other species although they, too, are recognised migrants.

Discussion

Behaviour of *Vanessa cardui* within Cyprus

Immigrant *V. cardui* arrived in waves, with numbers on at least three of the four days of the migration falling dramatically in the afternoon (see Table 1. L. Thomas 18 & 19 March and P. Flint 19 & 20 March). The precise timing of the first arrival of these waves has not been established, but reports of a migration in full progress in the early morning (before 08.00 hours) were received from observers based on the south coast, and P. R. Flint (see Table) observed them close to the north coast (WE30) at 07.00 hours. Although none was seen flying in over the sea, the close proximity of the sightings to the coast at Episkopi and Larnaca, the timing of sightings, the nature of the flight and the huge numbers involved, favour the arrival of a new, daily wave and rules out the possibility of stragglers remaining from the previous day's migration. There can be no doubt that each successive wave arrived in Cyprus after a night crossing, quite possibly passing over the south coast before dawn, and continuing until around midday or early afternoon.

Upon arrival at the south coast, the direction of flight seems in at least some cases to have been influenced by topographical features, as migrants were seen to follow valley courses or tracks. For example, at Episkopi, L. Thomas observed *V. cardui* following a north-easterly course inland whereas A. Aristophanous saw them take a north-westerly course near Alethriko but, 10 km further to the east, a more westerly direction was being followed (see Fig. 1). The common factor in these apparently haphazard bearings is that flight paths generally follow the course of rivers or valleys inland in the direction of the Troodos Mountains, as a glance at a relief map of the island will immediately indicate. Rivers in Cyprus, even in March, have little if any water, but residual moisture would certainly encourage vegetative growth. However, as ovipositing was only noted near the north coast (P. R. Flint, pers. comm.), it may simply be that the migrants veered slightly away from a north

Table 1. Summary of *Vanessa cardui* sightings, March 2001

Date	Time	Observer	Location	Map reference	Direction of flight	Est. numbers per min over 23-30m front	Weather conditions	Wind direction
18 March	09.30 to 15.30	Lyndon Thomas	Episkopi	VD93	NE following valley	c.25/min over the peak period of activity	"Clear, sunny 24-26°C 5-10% humidity"	"Light westerly"
19 March	08.00 to 09.00	Lyndon Thomas +3	Episkopi ¹	VD93	NE following valley	22-25 (counts by four people over 4 x 1 minute periods)	Not stated	Not stated
	10.00 to 15.00	Lyndon Thomas	Vouni, c.800 m alt.	VD85	N following valley	25-30 up to 13.00, stream weakened by 14.00 then negligible by 15.00	Not stated	Not stated
19 March	N/S	David Whaley	Paphos area at 350 m alt.	VD45	N through garden	"Many"	Not stated	Not stated
19 March	07.40	Aristos Aristophanous	Alethriko to	WD45	NW following Valley	"Continuous stream"	Not stated	Not stated
	08.00		Larnaca	WD56	W	"Continuous stream"		
19 March	N/S	Roger White	Throughout route from Larnaca to Vavatsinia	WD56- WD26	N mainly	"Thousands and thousands"	Not stated	Not stated
19 March	N/S	Yiannis Christofides	Platres, 1000 m alt.	VD86	N uphill through village	"Tens in a stream"	Not stated	Not stated
19 March	10.40	Peter Flint	Livera to Cape Kormakitis	VE91	N out to sea	38	"Clear, sunny"	"Light easterly, Force 1-2"
	10.45					34		
	10.55					75		
	11.40	Cape Kormakitis		VE91	N out to sea	40		
	11.42					45		
	12.00					"Fallen off sharply"		
	12.15					3		"Force 3-4"

20 March	09.15	David Whaley	Paphos coastal area	VD45	N along coast	"Continuous stream"	"Fine, clear, 24°C at coast"	"From NW, gusty to Force 3-4"
	13.30		Akamas Peninsula, 400 m – 600 m alt.	VD47	SW to coast	67		
	13.31					110		
20 March	07.30	Peter Flint	Kazaphani, 90 m alt.	WE30	W through garden	29	"Warm, calm, clear"	"Calm"
	07.40					33		
	08.00					75		
	08.25		c.400 m from north coast	WE30	W along coastal plain	30		
	08.30		c.200 m from north coast	WE30	W along coastal plain	25		
	09.05		Karakoumi	WE30	W along coastal plain	67		
	09.20		Kazaphani, 90 m alt.	WE30	W	49		
	09.30					35		
	09.40					39		
	12.30					6		
	13.30					3		
21 March	07.05	Peter Flint	Kazaphani, 90 m alt.	WE30	W	5	Not stated	Not stated
	07.15					2		
	07.30					10		
	08.00					12		
	10.55		Galatea Lake	WE91	W across lake	24	Not stated	"Westerly, Force 2-3"
	11.15					32		
	11.20				SW along road verge	45		
25 March	10.40	Peter Flint	Kazaphani ² , 90 m alt.		W	12	Not stated	Not stated
26 March	12.30	Peter Flint	Kazaphani, 90m alt.		W	9	Not stated	Not stated

Notes:

- The migration at Episkopi was noted as six separate "streams" of *V. cardui* following the course of a wide valley.
- Small numbers were noted throughout the day. 12 per minute represents the highest score.

Notes:

1. The migration at Episkopi was noted as six separate "streams" of *V. cardui* following the course of a wide valley.
2. Small numbers were noted throughout the day. 12 per minute represents the highest score.

or north-westerly course as a temporary, easy option. Nectaring was only noted in the late afternoon after the main wave of migrants had passed through the island. There appears to be no other pattern e.g. a fixed angle to the sun or wind factor to influence the selected flight path.

The presence of *V. cardui* over much of the island indicates a very large scale migration involving many millions of individuals. The migration appears to have approached and crossed Cyprus generally from the south or south-east on an island-wide front (perhaps even wider), with records spanning a distance of 200 km from the Karpas Peninsula ("panhandle") in the north-east to the Akamas Peninsula in the west. There is an indication that those reaching the north of the island from the direction of Larnaca Bay and Famagusta Bay unexpectedly then followed the northern coastal plain to its most westerly point at Cape Kormakitis. Here, the migrants left on a northerly course in the direction of Turkey, some 70 km distant. All P. R. Flint's observations from the north of Cyprus, other than those described at Cape Kormakitis on 19 March, consistently show movement in a westerly direction. It is possible, though unconfirmed, that similar behaviour took place on the northern tip of the Akamas Peninsula with migrants following the coastline north and west to depart at Cape Arnaoutis (see Fig.1). This could possibly be a strategy that enables migrants flying on a broad front to "re-group", i.e. to concentrate numbers before embarking on the next stage of a migration. This behaviour appears to be unusual for *V. cardui*, which is associated with straight, unswerving flight throughout its migration (T. B. Larsen, pers. comm.). Certainly the migration across Cyprus conformed in other respects e.g. *V. cardui* was observed flying over, rather than round, obstacles such as walls, bushes, houses and even people. D. L. Thomas, (pers. comm.) placed himself directly in line with one stream of migrating *V. cardui* and found that they flew over him without deviating to either side, after which they immediately returned to their chosen low flight level.

Estimated numbers

Numerous (approximately 50) one-minute counts of migrating *V. cardui* were made by observers in Cyprus. Although varying numbers were counted, at peak times an average of 50 migrants per minute per 25 metre zone, passed through. This extrapolates to 120,000 per hour per 1000 metres. Calculating the size of the migrating front over the 200 km is not without risk, but assuming a concentration of migrants along departure points totalling, say, 10% (20 km) of the migrating front, as well as a four day passage occupying around five hours peak departure per day, then an estimated 48 million *V. cardui* were involved in the migration. Even larger numbers may be involved in migrations, as quoted by Larsen (1984) who cites as an example an estimated three billion *V. cardui* engaged in a northerly spring migration in southern California and neighbouring states. In all probability the numbers

estimated in the migration through Cyprus are conservative and may even be seriously under-estimated. Indeed, the migratory front itself could have been far more extensive.

Origin, Direction and Destination of migration

It is known that huge numbers of *V. cardui* may breed in desert areas in suitable years and that large migrations may occur after high rainfall. Larsen (1984) states that "... in rainy years huge numbers breed in the Arabian desert zone". In the same book T. B. Larsen has a reference to "... countless numbers of Painted Lady larvae near Medain Salih in the Hejaz", on the western coast of the Red Sea (G. Popov, 1947 in Larsen 1984). A delightful account of an observation by S. B. J. Skertchly, quoted by C. B. Williams in *The Migration of Butterflies*, but reproduced here from Barrett & Burns (1966), beautifully describes a scene in the Sudan: "From my camel I noticed that the whole mass of the grass seemed violently agitated, although there was no wind. On dismounting I found that the motion was caused by the contortions of pupae of *P. cardui*, which were so numerous that almost every blade of grass seemed to bear one. Presently the pupae commenced to burst. Myriads of butterflies sprinkled the ground, and when the sun shone, dried their limp wings. About half an hour after the birth of the first, the whole swarm rose as a dense cloud and flew eastward towards the sea".

Dennis (1993), in writing about the evolution of the migratory habit, refers to the influence of weather systems on the extent of the irruption, frequency and disparity of distances covered in different years. In discussion with Torben Larsen two candidate areas, the Nile Delta and north-western Saudi Arabia, emerged as possible sources of the migration through Cyprus. Accordingly, with the assistance of R. J. Bitzer of Iowa State University an attempt was made, using satellite images, to locate likely areas in the Middle East where heavy winter precipitation could have favoured the growth of larval host-plants, potentially leading to a build-up of a large population of *V. cardui*. Weather conditions in the north-western area of Saudi Arabia early in 2001 appeared favourable, though no evidence of mass movement of *V. cardui* has subsequently been reported from these regions.

While Saudi Arabia cannot be eliminated as the source of a possible complementary migration, it now appears that the Negev region of Israel (see Fig. 2.) gave rise to the population explosion leading to the influx of migrants across Cyprus. Benyamini (2001a and in pers. comm.) describes the rainfall in the south of the country as about 80% of average but falling steadily throughout the winter, thereby encouraging prolific growth of larval host-plants. These ideal conditions prevailed in the central and northern Negev and also in the Jordan Valley. D. Benyamini (pers. comm.) writes that he first noted singletons of migrating *V. cardui* arriving from the south and south-east in November 2000, a month after the first rainfall. These, he believes, were the "seeds" of the first generation which emerged in January and, finding

conditions highly opportune, liberally oviposited on the abundant vegetation. Exponential growth of the population was further helped by the absence of large numbers of predators and parasites so early in the season. In the first 12 days of March, D. Benyamini further states “. . . we had records of single migrants from the Negev to Galilee, mostly migrating northwards or north-westwards. However, from 12-20 March a daily, continuous migration was seen moving westerly from Beer-Sheva in the Negev across the central plateau (Jerusalem), in the coastal plain near Tel Aviv and in Western Galilee, along a front of approximately 200 km”.

The change of flight to one of a westerly direction parallels some of the observations by P. R. Flint and D. Whaley referred to earlier, in Cyprus. However, there are no reports from Israel to indicate whether, upon reaching the coast, the migrating *V. cardui* followed a northerly course along the coastal plain or quickly left the mainland on a broad front. Independently D. Benyamini and I have estimated the extent of the front to be in the region of 200 km so it seems likely that there was little deviation until the mass, perhaps on moving out to sea, changed to a north-westerly course. Nectaring was evident along the coastal plain prior to their departure from Israel. Benyamini (2001b and in pers. comm.) refers to the exceptional growth of the wild *Chrysanthemum coronarium* which carpeted the coastal areas and provided “. . . a perfect re-fuelling station during the peak of the migration period”. He further comments that the arrival of the migrants near the coast synchronized well with the optimum period for nectar-plant quality, and adds that this is an annual occurrence in the south-east Mediterranean where “. . . local conditions combine to permit the rapid growth of ‘clean’ host-plants and later endless carpets of flowers that are ready to ‘refuel’ the migrants before they start to cross the Eastern Mediterranean northwards and north-westwards to Cyprus, Turkey and Europe.”

Migrants were recorded arriving at the south coast of Cyprus from 08.00 hours (but may have begun arriving much earlier) indicating that at least part of the passage took place in the hours of darkness. T. B. Larsen (pers. comm.) has “clocked” migrating *V. cardui* flying at a speed of about 30 km per hour so the journey of approximately 340 km from the coast of Israel could have been accomplished in 12 hours or less. Yet observations of *V. cardui* behaviour in Cyprus, and probably Israel too, show that migratory activity ceases in mid-to-late afternoon, when the principal emphasis turns to nectaring. Nevertheless, the timing points either to an unlikely evening departure from Israel or a much slower journey commencing, perhaps, 18-20 hours before the arrival time in Cyprus. Crossing to the island’s northern coast would have been achieved in about three hours, after which the migrants departed in the direction of Turkey.

Their arrival on the Turkish coast was confirmed by Marco Witte, one of a group of 13 Dutch birdwatchers, who observed *V. cardui* approach the coastline from a southerly direction over the sea at the Goksu Delta on 21

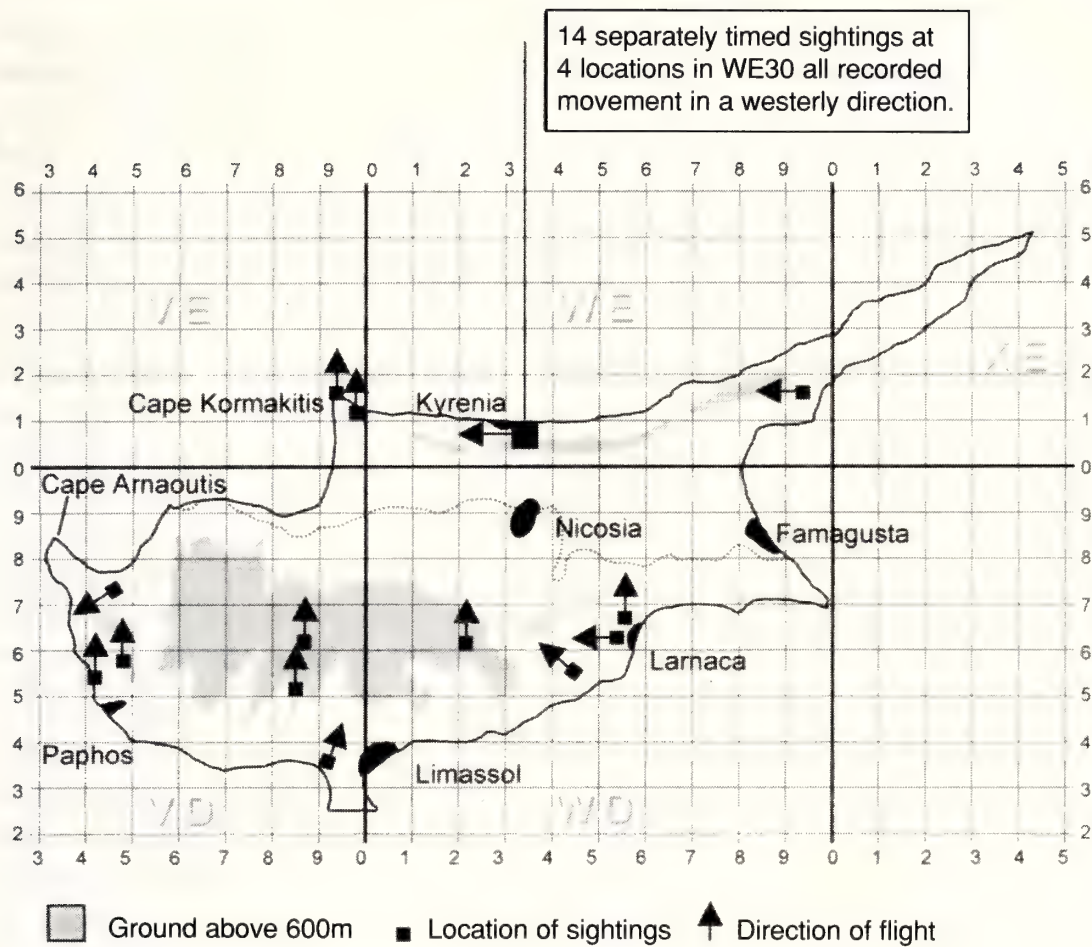


Figure 1. *Vanessa cardui*: migratory routes and direction of flight.

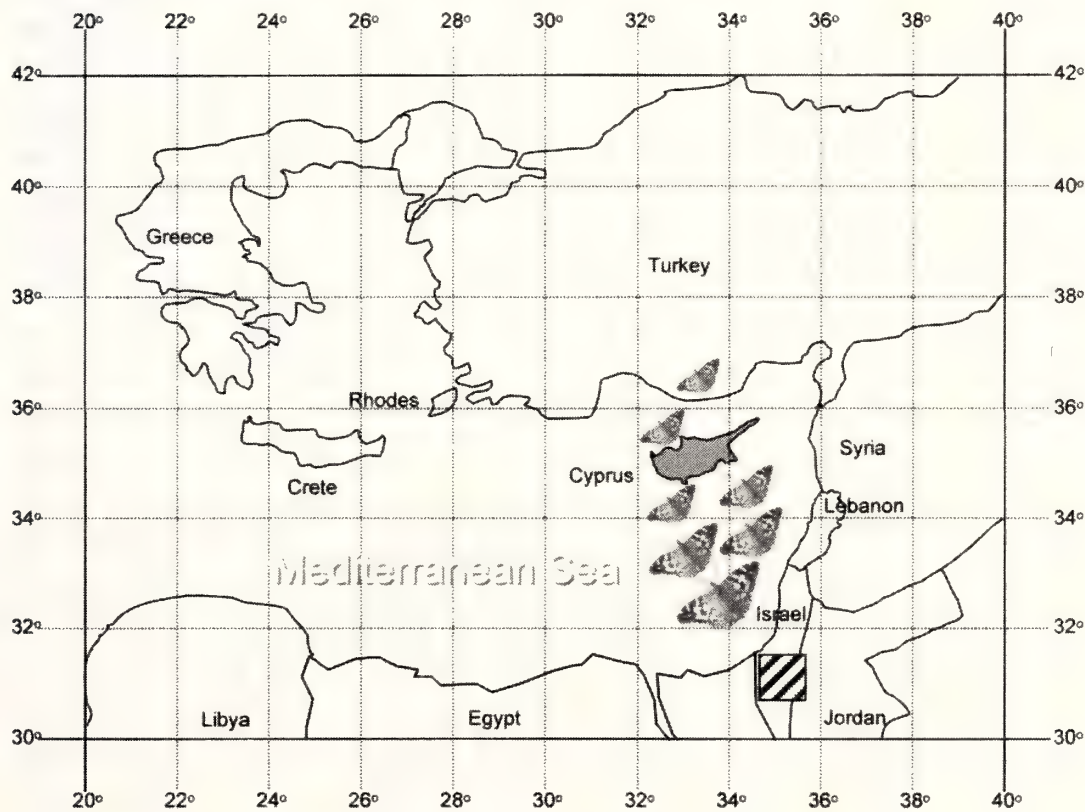


Figure 2. Probable source and direction of migratory path.

March 2001. Numbers were not counted but he writes: "you could see them everywhere". Unfortunately, no further details are known and no other reports have been received of the arrival of the migration in Turkey. Eastern and northern Turkey were still in the grip of winter at the time so a limited, westerly dispersal along the south coast of the country is a reasonable prediction. The migration might have extended westward as far as Rhodes where, early in May 2001, R. Parker (pers. comm.) observed large numbers of very worn *V. cardui* nectaring near the coast. Further west, no reports of migrant activity were noted in Greece during March or early April (J. G. Coutsis pers. comm.).

Migrations of *V. cardui* are normal annual occurrences in the south-east Mediterranean and will be summarised along with other migrations in a forthcoming paper (D. Benyamini *in press*) but it is less common for such large numbers to cross through Cyprus (pers. obs. R. Parker, E. John). Whether or not this spectacular migration will have any subsequent influence on the number of migrants to arrive in the UK and northern Europe in 2001, remains to be seen.

Postscript

A second, smaller migration of *V. cardui* was observed passing over Cyprus between 28 and 30 April 2001. Simultaneously, a migration of *Pieris rapae* (Linnaeus, 1758) was seen by another birder, Alison McArthur, who wrote: "In order to be sure that they (*V. cardui*) were migrants coming in from the sea I went down to the headland just after 1200 hours. To my surprise I only saw two Painted Ladies but instead saw several thousand Small Whites apparently drifting in off the sea from the south/south-east, many following the coastline". A. McArthur continues: "Unbeknownst to me, back at the flat, my husband was witnessing a 'snowfall' of white butterflies. He did three counts of one minute over a five metre front and came up with figures of 39, 13 and 22. This intense movement lasted for roughly an hour and ended just before the wind strengthened considerably from the south/south-east". J. G. Coutsis (pers. comm.) also advised of "a mass movement of rather fresh *cardui*" in Athens, between 29 April and 2 May 2001.

Acknowledgements

I am particularly grateful to Peter Flint and Lyndon Thomas for being the first to recognize and report the presence of a migration and for enthusiastically maintaining detailed records of its progress through the island. My thanks also go to Aristos Aristophanous, Yiannis Christofides, Alison McArthur, Christodoulos Makris, Michael Piponides, David Whaley, Roger White and Marco Witte for additional records or other assistance. Tracing the source of the migration would not have been possible without the willing assistance of Dubi Benyamini and Torben Larsen, both of whom gave valuable and much appreciated, information. I am also indebted to Royce Bitzer, John Coutsis and Rob Parker for their contributions to the paper.

References

- Ackery, P.R., Smith, C.R. & Vane-Wright, R.I., 1995. *Carcasson's African Butterflies*. Australia.
- Barrett, C. & Burns, A. N., 1966. *Butterflies of Australia and New Guinea*. Melbourne.
- Benyamini, D., 2001a. Refuelling station for migrating *V. cardui*. *News of the Israeli Lepid. Soc.* **18**(1): 19-20.
- , 2001b. The process of migration build-up of *V. cardui* in spring 2001 in Israel. *News of the Israeli Lepid. Soc.* **18**(1): 20-21.
- , 2002. Butterfly Migration in the Middle East. *Linneana Belgica* 18 : (in press).
- Common, I. F. B. & Waterhouse, D. F., 1981. *Butterflies of Australia*. Hong Kong.
- Dennis, R. L. H. 1993., *Butterflies and climate change*. Manchester.
- John, E., 2000. *Butterflies of Cyprus 1998 (Records of a year's sightings)*. AES. Pamphlet No. 15.
- Larsen, T. B., 1984. *Butterflies of Saudi Arabia and its neighbours*. Hong Kong.
- , 1988. A migration of *Cynthia cardui* (Lep., Nymphalidae) in Portugal. *Entomologists Rec. J. Var.* **100**:131.
- Larsen, T. B. & Nakumaura, I., 1983. The Butterflies of east Jordan. *Entomologist's Gaz.* **34**: 135-208.
- Parker, R., 1983. The Butterflies of Cyprus. *Entomologist's Gaz.* **34**: 17-53.
- Royal Air Force Ornithological Society, 1996. Akamas, Cyprus: A Report of Bird Migration Spring 1995.
- Williams, C. B., 1970. The migrations of the Painted Lady butterfly, *Vanessa cardui* (Nymphalidae), with special reference to North America. *J. Lepid. Soc.* **24**:157:175.

Thistle Ermine *Myelois circumvoluta* (Geoff.) (Pyrallidae), Blackneck *Lygephila pastinum* (Tr.) (Noctuidae) and Convolvulus Hawk-moth *Agrius convolvuli* (L.) (Sphingidae): three interesting Staffordshire moths (Lepidoptera)

Three moths encountered in Staffordshire during the course of the last two years appear to be particularly noteworthy and worth placing on permanent record.

On 28 September 2000, Mr Paul Evans found a large dead moth on the roadside in Stafford town centre and brought it to me for identification. It was immediately recognised as a Convolvulus Hawk-moth *Agrius convolvuli*. After showing it to Keith Bloor, Keeper of Natural History at The Potteries Museum, Hanley, I placed it in my own collection. From June to October 2000, there was migrant moth activity in the county, with Humming-bird Hawk-moth *Macroglossum stellatarum* (L.) and Pearly Underwing *Peridroma saucia* (Hb.) both recorded. I captured a single specimen of ab. *margaritosa* Haw. of the last species at sugar in my garden on 26 October; several others were all of the typical form. Rush Veneer *Nomophila noctuella* (D.& S.), Red Admiral *Vanessa atalanta* (L.) and Painted Lady *V. cardui* (L.) appeared in moderate numbers whilst there were lesser quantities of Clouded Yellow *Colias croceus* Geoffr. scattered about the county and a Vestal *Rhodometra sacraria* (L.) was also reported.

On 14 June 2001, in the company of Mr R. H. Heath, I visited the Victoria Road disused railway line that runs through Stoke-on-Trent and Hanley. The day was overcast and quite warm, with a strong threat of rain. We noticed six Thistle Ermines *Myelois circumvoluta* at rest on vegetation. According to David Emley, the Staffordshire Moth Recorder, this is a scarce species in the county. The first record was from Blythe Bridge Mill, Kingstone in 1977 (J. A. Herbert) and since that date only a handful have been recorded, mostly in the south. This new location in the north of the county is, therefore, of some interest. The larvae are associated with thistles and burdock, though the adult is also a sporadic migrant (Bradley, 2000. *Checklist of Lepidoptera recorded from the British Isles*).

On 1 August 2001, a Blackneck *Lygephila pastinum* was taken by me at the same locality. Again, there are very few county records. According to Emley & Warren (2001. *The larger moths of Staffordshire*), the first was at Scot Hay on 18 September 1983 (G. Burgess) and since then it has only been recorded from Gnosall, July 1986 (R. G. Warren), Burnt Wood, 7 July 1997 (R. G. Warren) and the Sandwell Valley, 6 August 1999 (D. Grundy). The specimen is in my collection.— JAN KORYSZKO, 3 Dudley Place, Meir, Stoke-on-Trent, Staffordshire ST3 7AY.

Hazards of butterfly collecting: A typical Scandinavian picnic – New Delhi, January 1955

We had been tasked with designing the annual Scandinavian picnic in Delhi, India. We selected a little known complex of old Moghul tombs out near the international Palam Airport, then a long way from Delhi, now wholly embraced by the town. At the time there were about two million people in Delhi, now it is in double digits.

I was the chief advocate of the spot. It had many advantages. It was good for butterflies, especially those of the dry zones, mostly of African origins. And it was also just under the landing path to Palam, and I was mad about airplanes. There was also a most splendid bird fauna. And the Moghul tombs were fine, though not very ornate, but several of them had huge populations of bats, which would be my main contribution to the picnic. I was eleven at the time.

We did a lot of butterfly collecting while staking out the ground, but with Scandinavian precision the 30 or 40 Scandinavians in town assembled (we must have made a very decent map). We had a great picnic – rye bread, pickled herrings, liver paste, lots of akvavit (schnapps), real beer, etc.

Then came my star turn. I took the braver members of the Scandinavians down to see the bats in place, but I took two back to show to the less brave members of the team. While I was showing off the bat, it bit me. Dr. Halfdan Mahler, later to become Director General of the World Health Organization as well as the International Planned Parenthood Federation, rushed up. Rabies!

Bats can transmit rabies!! I spent the next half hour with a glass schnapps held on my head and my bitten finger immersed in it. There was no medical basis for this; Mahler has a wicked sense of humour. But worse was to come.

My younger brother, Gunner, about six at the time, joined me for a bout of butterfly collecting. I particularly wanted a long series of the incredibly variable *Colotis etrida* females – closely related to the African *C. euippe*. I also looked in my binoculars at every landing aircraft, and after an hour there was a Convair 340 of Pakistan International Airlines, a rare bird by our standards. I stepped back a step – my worst ever step back.

I tumbled into the mouth of a mica mineshaft, and I fell, fell, and fell, then hit the ground, all stuffing being knocked out of me. Mica is the stuff they use for heat resistant pyrex glass and here it was mined in the most primitive manner; the mine had a one metre or so opening at the top and then a shaft of two metres till the mica-bearing strata were reached and excavated. In fact the shape of the whole mine was rather like that of these bottles of the awful Portuguese Mathaeus Rosé sparkling wine.

I moved my arms one by one. I moved my legs one by one. They worked. But I could not get up from my prostrate position. Even at the tender age of eleven I reckoned that if I could talk, see, breathe, and move all limbs then, at worst, I might have some bones broken in my hip area. My brother had seen me suddenly disappear and ran back to the main picnic: 'Torben has fallen into a big hole'. But by now the adults were using the schnapps internally, rather than as a rabies treatment, so it took a while till he was taken seriously. Soon the heads of my parents appeared in the tiny entrance hole above; each of their legs were being held by another member of the group. We were able to communicate by shouting and we reassured each other that nothing was seriously wrong. Except for the little matter of getting out the hole.

Someone went off to see if the airport could help, but they were not taken seriously – Europeans always exaggerated. Someone else went off to the mica miners' village. A nice grandfatherly person was lowered down with injunctions to look out for snakes, the least of my worries, but a serious one up there. Soon a small *charpoy* (an Indian string bed) was procured which could just pass through the opening. The old man lifted me onto the charpoy without much difficulty, reinforcing the impression that this was not a life-threatening situation. The ascent was, though: the people pulling the four ropes could not look down and were depending on a string of instructions by a man leaning out over the hole, again being held by a man on either leg.

I was rushed to our doctor, a kindly christian, x-rays were taken, and physical examination started – there was nothing evidently wrong. As he heard the story, I think the name of God was invoked at least fifteen times, and even more when the x-rays were meticulously examined. I had been really lucky. There was a slight pelvic fracture that would keep me in bed for three months, but I would not need bedpans or other paraphernalia. A set of school text-books were sent up from my boarding school in South India, I played a

lot of chess, I read an eclectic selection of books, and pretty soon the three months were up.

We went back to the scene of the crime as soon as I had been cleared. There was one change. My hole, and many others, now had their entry holes bordered by *Acacia* cuttings with strong thorns. I suspect the kindly old man organized that. We also brought a string to measure the hole; I had been in free-fall for 10.40 metres. I could also see how frightening my situation must have seemed to the people looking down. Still, all is well that ends well, and I got some more female *Colotis etrida* after three months without a net. – TORBEN B. LARSEN, Bangladesh, World Bank, 1818 H. Street N.W., Washington D.C., 20433, USA.

Book Reviews

An introduction to the invertebrates by **Janet Moore**. Cambridge University Press (in the series *Studies in Biology*), 2001. 356 pp., many text diagrams, 227 × 150 mm, paperback. ISBN 0 521 77076 9. £40.

This book is a short guide to the insect phyla, looking at their diverse forms, functions and evolutionary relationships. A short introduction of the process of evolution and natural selection is followed by a lengthier chapter on the molecular evidence for patterns of evolution. Evolution is the overall theme of the book and a tour of the invertebrate phyla is deployed to this effect. Mention of insects is minimal, but the book provides invaluable background reading for anyone interested in taxonomic studies at any level. It is written in a clear, easily read and easily understood manner – no doubt a reflection of Dr Moore's considerable experience of teaching zoology to undergraduates at Cambridge. Well worth a read.

The Sesiidae of Europe by **Zdeněk Laštůvka & Aleš Laštůvka**. Apollo Books, 2001. 246 pp., 9 colour plates, over 100 line drawings, distribution maps for all species. 245 × 173 mm, hardbound, ISBN 87 88757 52 8. DKK 370 exclusive of postage costs. Apollo Books, Kirkeby Sand 19, DK-5771 Stenstrup, Denmark (apollobooks@vip.cybercity.dk).

The clearwing moths appear to be gaining in popularity in recent years. Western Palaearctic species were covered in some detail by Josef de Freina in his 1997 work (*Die Bombyces und Sphinges der Westpalaearktis*, Vol. 4: *Sesiidae*. Forschung & Wissenschaft, Munich). A year later, Špatenka *et al* produced a volume covering the entire Palaearctic region (*Handbook of Palaearctic Macrolepidoptera*, Vol. 1: *Sesiidae – clearwing moths*. Gem Publishing Company, Oxon.). Now, the same group is covered in the relatively smaller area of Europe by the work here reviewed.

This latest work has three distinct advantages – it covers only the European species and so excludes material that is likely to be of lesser interest to British lepidopterists; it is of smaller size and so easier to handle and use; and, at around £30, it is by far the cheapest. All three volumes contain keys, species accounts, colour pictures of adults and drawings of male and female genitalia. Personally I find the colour photographs of

adults in de Freina's book too small to be of much use; although the page size is large there are often over 100 moths illustrated on one page plate! The present volume has much larger photographs, with between 16 and 24 moths to each page, making them much more valuable for comparing specimens. The work by Špatenka has (very good) colour paintings. In terms of the overall layout of the works, I personally prefer the Apollo Books contribution. For one thing, the keys are placed all together in a single section, rather than keying out members of different groups at various positions in the text. These keys were tested on my specimens of *Sesia apiformis* (Cl.), *Paranthrene tabaniformis* (Rott.), *Synanthedon scoliaeformis* (Borkh.) and *S. myopaeformis* (Borkh.) and worked very well to give the correct answers without bother.

The text is most extensive in the two earlier volumes, though that in *Die Bombyces und Sphinges* is in German and so not ideal for British workers. The distribution maps in the *Handbook of Palaearctic Macrolepidoptera* were criticised by me in my review in *Ent. Rec.* **112**: 47-48. The maps in *Die Bombyces und Sphinges* are not dissimilar to those in the *Sesiidae of Europe* currently under review, but they are far neater and easier to interpret (I compared the map of *Bembecia puella* Laštůvka (page 53 in the book under review, Map 57 in the earlier work). Though the maps are quite adequate, the continental boundaries in the present work give the appearance of having been drawn with a child's crayon. The checklists in all three volumes appear to be substantially the same in respect of British species.

Overall, if forced to a choice (which happily, since I have all three volumes, I am not), I think I would have to select the present volume by Zdeněk and Aleš Laštůvka. The selection of species is more relevant, the design and layout is more user-friendly, the keys are more convenient to use, the pictures are far superior, the text is in English and the price is affordable. It forms a companion to *The Geometrid Moths of Europe* (of which the first part was reviewed on pages 239-240 of his volume) and is your editor's "Christmas 2001 Recommended Book" for British Lepidopterists who also have an interest in the European fauna!

Provisional atlas of the aculeate Hymenoptera of Britain and Ireland, Part 3. edited by **Robin Edwards** for the Bees, Wasps and Ants Recording Society. NERC, 2001. 146 pp., 59 distribution maps. A5, paperback, ISBN 1 870393 58 9. Available from the Biological Records Centre, Monks Wood PE28 2LS.

This third part of the work on the distribution of the British Isles aculeate Hymenoptera presents maps numbered 112 to 170. Part 1 was reviewed in *Ent. Rec.* **110**: 48 and Part 2 was discussed in *Ent. Rec.* **111**: 48. Similar comments to those made then apply equally here and the overall work, when completed, will present a valuable information resource. Critics have suggested that by the time the last part appears the first will be out of date. This may be the case, though I have no idea how many parts will appear nor over what period of time.

I continue to regard the time band for modern records as being too wide (1970 to 2000). I give as an example Map 170 (for *Bombus sylvarum*) in the presently reviewed volume. This apparently suggests that this species is widely spread, if somewhat Local, in southern Britain and in Ireland, and indeed the text starts with the words "A rather local lowland species of bumble bee . . .". I find this rather misleading, as the species in question is, in fact, considerably rare and is certainly absent from many of the ten-kilometre squares shown by solid black dots (in fact it is a UK *Biodiversity Action Plan* species and one for which English Nature have created a *Species Recovery*

Programme). The map symbols are, in fact, clearly interpreted on page 13, but I wonder how many people will look here? These distribution atlases are, essentially, pictorial works. Few people read the text, and those that do are already likely to be interested in the conservation of the species. Lost in the text opposite this particular map is the statement that the bee may now be in danger of becoming extinct; surely it would improve the series greatly if maps for species such as this one were presented differently?

The flat-footed flies (Diptera: Opetiidae and Platypezidae) of Europe by **Peter J. Chandler**. Brill Academic Publishers, 2001 (*Fauna Entomologica Scandinavica* volume 36). 276 pp., hardbound, ISBN 90 04 12023 8. 87 Euros (US\$ 197). Available from usual entomological book suppliers or by e-mail to orders@brill.nl.

Many readers will already be familiar with some of the volumes in the *Fauna ent. Scand.* series and will be acquainted with the extremely high standard of accuracy, clarity and completeness. This latest volume, by Peter Chandler (a member of this journal's own editorial panel!), is no exception. The work provides a detailed account of the taxonomy, biology and distribution of the 44 European species of Opetiidae and Platypezidae. All European species are included. The genus *Opetia* is formally removed from Platypezidae and is the sole genus in the family Opetiidae. Genus *Atelestus* is removed from Platypezidae to the Empidoidea. Four subfamilies of Platypezidae are recognised, including Melanderomyiinae subfam. nov., known only from North America. All taxa are keyed and described, comprising forty-three species of Platypezidae and one of Opetiidae. Two species, *Microsania collarti* sp. n. and *Lindneromyia hungarica* sp. n. are described here as new species. Several new synonymies are established and 24 lectotypes are designated.

The geographic distribution tables at the end of the book indicate that in addition to *Opetia nigra*, 30 Platypezidae are recorded from Britain. Unsurprisingly, the existing British Diptera checklist, which Peter himself produced in 1998, does not differ. This book is the absolutely essential reference and identification work on Opetiidae and Platypezidae for all European Dipterists, including the British.

The Millennium Atlas of Butterflies in Britain and Ireland by **Jim Asher, Martin Warren, Richard Fox, Paul Harding, Gail Jeffcoate & Stephen Jeffcoate**. Oxford University Press, 2001. 434 pp., numerous colour illustrations, distribution maps and text figures. 257 × 205 mm, hardbound. ISBN 0 19 850565 5. £30.

Few, if any, British entomologists are unaware of the fieldwork carried out for this monumental work – this mother of all distribution atlases. For several years, almost every amateur naturalist in Britain has been contributing records towards the production of this volume. A mere handful of ten-kilometre map squares in north-west Scotland and in central Ireland were not sampled – every other such square in the British Isles was visited at least once, and in many cases several times.

The result is probably the most comprehensive set of results available for any division of the British Isles fauna or flora. Distribution maps form only one small part of this *magnum opus*. The opening chapter reports on the background both to the project itself and to butterfly recording in the British Isles generally. The traditional chapter on butterfly habitats in such books is expanded through the use of full page colour maps showing altitude, solid geology, soil types and principal land use, whilst smaller maps show climatic influences. Major habitat types and key features are

illustrated by superb colour photographs. The two following chapters, concerned with gathering data and interpreting data are important reading.

Inevitably, the species accounts form the bulk of the work. All species are given identical treatment, under the headings Species name and status, Conservation status, European/world range, Foodplants, Habitat, Life cycle and colony structure, Distribution and trends, European trends, Interpretation and outlook and finally Key references. The main distribution map for each species shows current distribution by differently coloured dots for each abundance category, together with historical data from two time bands as open circles and crosses; the symbols are hierarchical, so that the most recent takes precedence. Subsidiary maps in some species accounts show a more detailed picture of the distribution or changes in range. Two concluding chapters are The pattern and cause of change and Conserving butterflies in the new millennium. There are several appendices, and I found the one presenting phenograms most enlightening.

Five species have become extinct since 1800. In the same period, 15 species have declined by more than 50%; 14 species have declined by 20-50%; five species are stable but have declined within their range, five are stable, and 15 have expanded by more than 20%. Those that have increased are wider countryside species; those that have declined or become extinct are habitat specialists. Habitat destruction, neglect and isolation is the primary cause of losses from and declines within our butterfly fauna.

I cannot for one moment imagine that there is a single butterfly enthusiast in Britain who does not already own a copy of this book; if there is, he or she should immediately rush to the shops and buy one. European entomologists will also find much within its pages that is of direct interest and relevance. There is much that can be directly applied to reporting the results of moth surveys, and probably also that can be applied to other invertebrate groups. For example, here at long last is the absolute proof that habitat loss and neglect is the main cause of declines in the British invertebrate fauna. Anyone who is at all involved with planning and development control, as a developer, a consultant ecologist or even as an antagonistic amateur naturalist, should buy and read this book so that they are better equipped to present facts rather than emotion.

This monumental work stands as a magnificent testament to the uniquely British system whereby the efforts of countless amateurs are harnessed by professionals to produce a final product that is of immense value and use everyone concerned and of interest to anyone who is not! This is the Editor's book of the year 2001; it is commended most highly to all entomologists everywhere.

The Larger moths of Staffordshire by **D. W. Emley and R. G. Warren**. Biological Recording Scheme publication number 16. Staffordshire Ecological Record, 2001. 142 pp., 7 colour plates many distribution maps. A4, softback. ISBN 1 874414 20 3 (ISSN 0309 2100 for the series). £10, plus £1.50 UK postage and packaging, from Potteries Museum & Art Gallery, Bethesda Street, Hanley, Stoke-on-Trent ST1 3DW.

The death of Richard Warren in 1999 dealt a severe blow to the study of Lepidoptera in my home county of Staffordshire. I am, therefore, pleased to see that David Emley, who subsequently took on the recordership for the county after Richard, has not only succeeded in putting to print a county list that is based primarily on material gathered by Richard, but has also included his name on the front cover.

This work is not, nor is it intended to be, definitive. Rather, it is a summary of existing knowledge. Warren's *Atlas of the Lepidoptera of Staffordshire* [moths were in parts 2 (1976) – 6 (1981)] was updated in 1983 (Warren, R. G., *Staffordshire Butterflies*

publication details the status and distribution of 543 species of larger moth recorded in *Staffordshire Moths: A revised checklist*), but that work, too, is now dated. The present publication details the status and distribution of 543 species of larger moth recorded in Staffordshire to date. Maps are presented for each species within three date bands – pre-1960, 1960-1979 and 1980-2000.

Emley makes no false claims. The county is a large one, some 90 × 60 kilometres, containing a range of habitats from dense urban regions to open moorland, spread across no less than 39 ten-kilometre squares, encompassing 743 map tetrads. Large areas can prove difficult to access, whilst there are rather fewer active moth-hunters in Staffordshire than there are here in the south-east. Thus, it is no real surprise that the county remains under-recorded. Nevertheless, the work succeeds in its aim to assign a broad status label to each species, for conservation purposes, and it lays the ground for future researches into the county's moth fauna. Common, scarce and lost species are listed in separate Appendices. Records included in the maps have all been fully validated, including by the preparation of genitalia slides where appropriate. Consequently, the book achieves a high degree of accuracy. Naturally, since the author is a friend, I have tried desperately to find and list as many errors as possible! In this task I have been somewhat disappointed. There is a minor hiccup in the map of *Mesapamea secalis* sensu stricto; after mapping the aggregate species, Emley notes that only one record of the segregate *secalis* has been confirmed (from Chartley Moss) and then proceeds to present a distribution map with dots in no less than five squares. The map for *didyma* appears to be correct. I did notice that my own name was absent from the list of contributors of records on pages 11 and 12, though I do seem to be mentioned in the text on page 111. I am not at all sure that the Least Black Arches on Plate 3 is correctly named.

The work is furnished with short, introductory chapters and with several pages of colour plates, depicting a number of species. Within the species lists, data on foodplants are culled from national publications in order that this provisional publication may present to a wide, general readership as much basic information as possible to encourage an interest in recording. In due course it is intended to produce a more definitive publication in which the flight times and foodplants as recorded in Staffordshire will be listed.

This is a valuable summary of knowledge of Staffordshire moths to date and its low price means that it should be possible for every lepidopterist in Britain to support David Emley's ongoing research by buying a copy. I look forward to a similar summary work on the micros!

CORRIGENDA

The following important corrections have been notified to the Editor:

Volume 112 (2000)

Page 10. On text line 2, in the note on an unusual early brood of the Willow Beauty, by Anthony Allen, the date is incorrectly given as 1 June 1999. The correct date should be 11 June 1999.

Current volume (113)

Page 26. In paragraph 3, on the third line from the end of the note, the generic name *Alpalus* is misspelled as *Alpus*.

An appeal for material

As part of my studies into the effects of atmospheric pollution on lichenophagous bagworm moths (Lepidoptera: Psychidae) I am conducting an analysis of the genetics (DNA) of the British bagworms. In order to complete this I wish to include the following species:

Dahlica lichenella (Linn.)
Bacotia sepium (Speyer)
Proutia betulina (Zeller)
Psyche crassiorella Bruand
Whittleia retiella (Newman)
Acanthopsyche atra (Linn.)
Pachyythelia villosella (Ochesn.)
Sterrhopterix fusca (Haw.)

I would be very grateful if readers could supply me with fresh material, reared or collected during 2000 or 2001. A small fragment such as a leg or a piece of pupal exuvia is all that is required, provided that identification of the species concerned is sound. Alternatively, advice concerning known habitats and timings when larvae may be obtained would be most welcome. I can supply readers with postage tubes for dried material and will refund postage and packaging costs.— IAN SIMS, 2 The Delph, Lower Earley, Reading, Berkshire, RG6 3AN. (E-mail: Sims@wrcplc.co.uk)

Entomologist's Monthly Magazine

Caters for articles on all orders of insects and terrestrial arthropods, specialising in the British fauna and groups other than Lepidoptera. Published March, July and November (4 months per issue)

Annual subscription UK and Europe £33 (\$72), USA and Rest of World £36 (\$79).

Entomologist's Gazette

An illustrated quarterly, devoted to Palaearctic entomology. It contains articles and notes on the biology, ecology, distribution, taxonomy and systematics of all orders of insects, with a bias towards Lepidoptera. Caters for both the professional and amateur entomologist. Published January, April, July and October.

Annual subscription UK and Europe £29 (\$64), USA and Rest of World £33 (\$72).

The Moths and Butterflies of Cornwall and the Isles of Scilly

by F.H.N. Smith (County Species Recorder)

The systematic list gives details of localities, dates and provenance for over 1500 species, also noting the status currently assigned by English Nature to the nationally uncommon or endangered species which occur in Cornwall. Listed are species gained since the Victoria County History, 1906, and those not since recorded. 480 pages including 152 colour illustrations. **Hardback £44 + P&P £3.**

Handbook of Palaearctic Macrolepidoptera

VOLUME 1 Sesiidae – Clearwing Moths

by K. Špatenka, O. Gorbunov, Z. Laštůvka, I. Toševski and Y. Arita

Synonymic lists, descriptions section, full data on male and female genitalia, bionomics and habitat and distribution maps. Most species illustrated by superb watercolour paintings by Starý, Holzinger and Gregor. Published October 1999. **Price £120 + P&P: UK £5, Overseas £10.**

Payments by cheque or Giro Transfer to account no. 467 6912.

*For further details
please write to:*

GEM PUBLISHING COMPANY
Brightwood, Brightwell,
Wallingford, Oxon OX10 0QD



THE ENTOMOLOGIST'S RECORD

AND JOURNAL OF VARIATION

<http://members.netscapeonline.co.uk/colinwplant/entrechome.html>

Contents

Microlepidoptera review of 2000. <i>J. R. Langmaid & M. R. Young</i>	241-254
The Striped Lychnis moth <i>Shargacucullia lychnitis</i> (Rambur) (Lep.: Noctuidae): A review of its distribution in Buckinghamshire (VC 24) during 2000. <i>Peter Hall</i> ...	257-260
Butterflies (Hesperioidea, Papilionoidea) on islands in the Aegean archipelago: A correction, additions, an aid to identification and a cautionary tale. <i>Roger L. H. Dennis, John G. Coutsis & Alain Olivier</i>	265-268
Migration of <i>Vanessa cardui</i> (L.) (Lep.: Nymphalidae) through Cyprus, March 2001. <i>Eddie John</i>	269-281

Notes

<i>Leptidea reali</i> NOT known from Britain. <i>David Corke</i>	254
<i>Duponchelia fovealis</i> Zell. (Lep.: Pyralidae) and other moths new to Hertfordshire during 2001. <i>Colin W. Plant</i>	255-256
Further records of Hoary Footman <i>Eilema caniola</i> (Hb.) (Lep.: Arctiidae) on Anglesey. <i>Graham Jones</i>	256
Lang's Short-tailed Blue <i>Leptotes pirithous</i> (L.) (Lep.: Lycaenidae) and other butterflies on Madeira Island. <i>D. Hall & P. J. C. Russell</i>	261
What is happening to the Small Tortoiseshell <i>Aglais urticae</i> (L.) (Lep.: Nymphalidae)? <i>A. A. Allen</i>	261-262
<i>Cacyreus marshalli</i> (Butler) (Lep.: Lycaenidae) in Corsica. <i>Mark R. Shaw</i>	262
<i>Cosmopterix orichalcea</i> Stainton (Lep.: Cosmopterigidae), a resident species on the Isle of Rum, Scotland. <i>K. P. Bland</i>	262-263
New food-plant for <i>Leucoptera orobi</i> Stainton (Lep.: Lyonetiidae) from the Isle of Rum, Scotland. <i>K. P. Bland</i>	263
A second sighting of <i>Sitaris muralis</i> (Forst.) (Col.: Meloidae) at Welling in north-west Kent. <i>A. A. Allen</i>	268
<i>Nemapogon variatella</i> (Clemens) (Lep.: Tineidae) imported in Spanish mushrooms, and a larval description. <i>P. M. Costen</i>	263-264
Thistle Ermine <i>Myelois circumvoluta</i> (Geoff.) (Pyralidae), Blackneck <i>Lygephila pastinum</i> (Tr.) (Noctuidae) and Convolvulus Hawk-moth <i>Agrius convolvuli</i> (L.) (Sphingidae): three interesting Staffordshire moths (Lepidoptera). <i>Jan Koryszko</i> ..	281-282
Hazards of butterfly collecting: A typical Scandinavian picnic – New Delhi, January 1955. <i>Torben B. Larsen</i>	282-284
Corrigenda. <i>Editor</i>	288

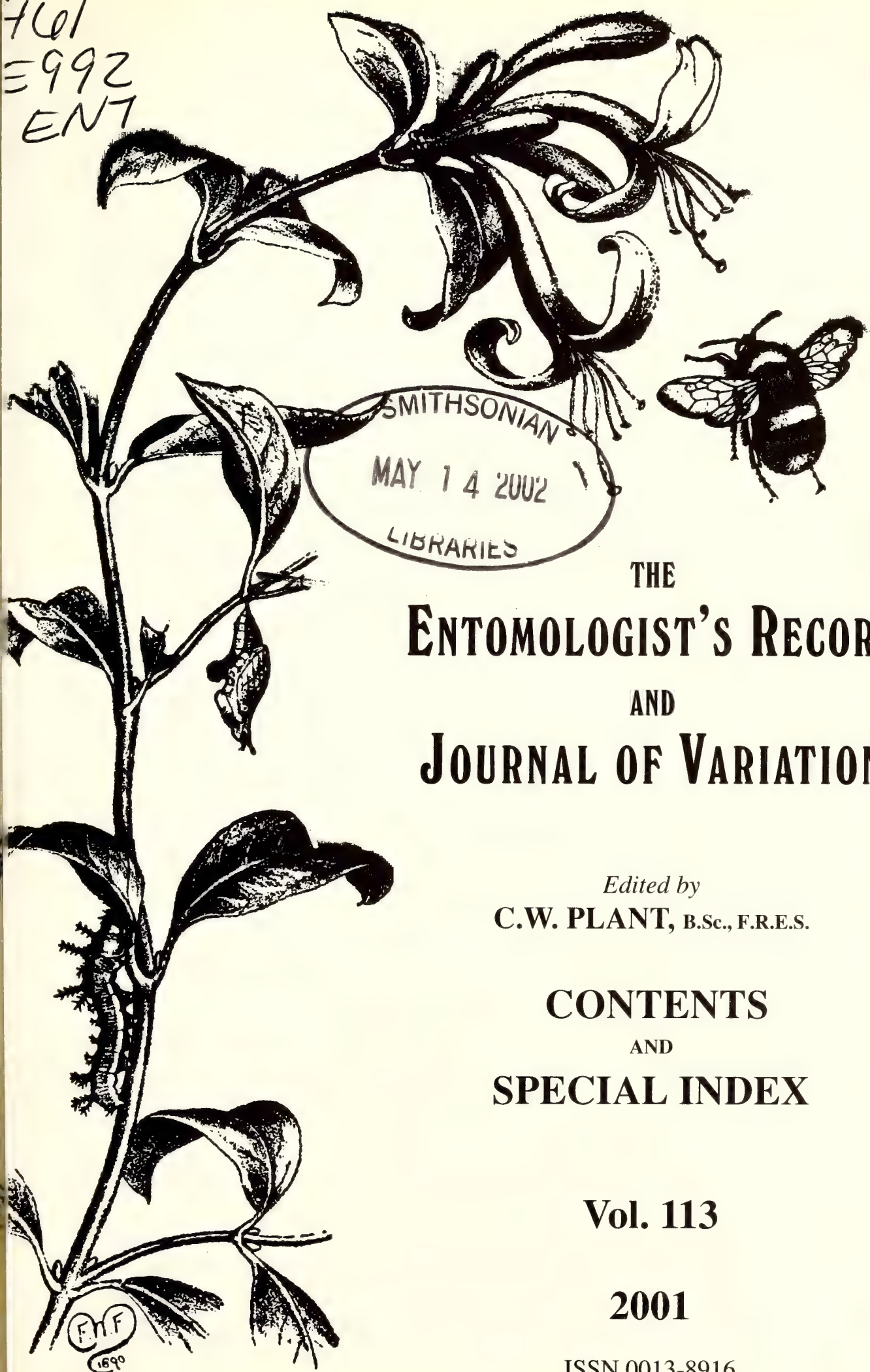
Book Review

<i>An introduction to the invertebrates</i> by Janet Moore	284
<i>The Sesiidae of Europe</i> by Zdeněk Laštůvka & Aleš Laštůvka	284-285
<i>Provisional atlas of the aculeate Hymenoptera of Britain and Ireland, Part 3.</i> edited by Robin Edwards	285-286
<i>The flat-footed flies (Diptera: Opetiidae and Platypezidae) of Europe</i> by Peter J. Chandler	286
<i>The Millennium Atlas of Butterflies in Britain and Ireland</i> by Jim Asher, Martin Warren, Richard Fox, Paul Harding, Gail Jeffcoate & Stephen Jeffcoate	286-287
<i>The Larger moths of Staffordshire</i> by D. W. Emley and R. G. Warren	287-288

Printed in England by

Cravitz Printing Company Limited, 1 Tower Hill, Brentwood, Essex CM14 4TA. Tel: 01277 224610

DL
461
E992
ENT



SMITHSONIAN
MAY 14 2002
LIBRARIES

THE
ENTOMOLOGIST'S RECORD
AND
JOURNAL OF VARIATION

Edited by
C.W. PLANT, B.Sc., F.R.E.S.

CONTENTS
AND
SPECIAL INDEX

Vol. 113

2001

ISSN 0013-8916

Ent.F
1690

THE ENTOMOLOGIST'S RECORD

AND JOURNAL OF VARIATION

World List abbreviation: *Entomologist's Rec. J. Var.*

Editor

C.W. PLANT, B.Sc., F.R.E.S.

14 West Road, Bishops Stortford, Hertfordshire CM23 3QP.

Telephone: 01279 507697 E-mail: colinwplant@ntlworld.com

Assistant Editors

R.A. JONES, B.Sc., F.R.E.S., F.L.S. & A. SPALDING, M.A., F.R.E.S.

Editorial Panel

A.A. Allen, B.Sc., A.R.C.S.

N. L. Birkett, J.P., M.A., M.B., F.R.E.S.

J.D. Bradley, Ph.D., F.R.E.S.

J.M. Chalmers-Hunt, F.R.E.S.

P.J. Chandler, B.Sc., F.R.E.S.

C.A. Collingwood, B.Sc., F.R.E.S.

C.J. Luckens, M.B., Ch.B., D.R.C.O.G.

B. Skinner

P.A. Sokoloff, M.Sc., C.Biol., M.I.Biol., F.R.E.S.

Registrar

R.F. McCormick, F.R.E.S. 36 Paradise Road, Teignmouth, Devon TQ14 8NR

Hon. Treasurer

C.C. Penney, F.R.E.S. 109 Waveney Drive,
Springfield, Chelmsford, Essex CM1 7QA

Photograph Editor

David Wilson, 9 Lode Lane, Wicken,
Cambridgeshire CB7 5XP

WHERE TO WRITE

Papers, notes, books for review, notices, adverts etc – *Editor*

Changes of address – *Registrar*

New subscriptions, renewals, donations, non-arrival of Journal – *Treasurer*

Back issues – Paul Sokoloff, 4 Steep Close, Green Street Green, Orpington, Kent BR6 6DS

ANNUAL SUBSCRIPTION RATES

Individual subscriber £28

Institutional subscriber £40

Readers are respectfully advised that the publication of material in this journal does not imply that the views and opinions expressed therein are shared by the Editor, the Editorial Panel or any party other than the named author or authors.

Guidelines for contributors

We welcome articles for publication from all sources. It is not necessary for authors to be subscribers. Please follow the format of articles in this issue of the journal. Full instructions may be obtained by post from the editor or via our web site at:

<http://members.netscapeonline.co.uk/colinwplant/entrechome.html>

We are now able to include colour or black and white photographs (or slides), where these effectively illustrate a point in your article.

We publish notes and peer-reviewed papers on **British Isles** insects, primarily Lepidoptera and Coleoptera, but contributions on any other group may also be sent. We also include articles on European species in some situations, where we believe this to affect the British Isles fauna or to be of interest to British Isles entomologists. Non-European articles may be included, rarely, and entirely at editorial discretion.

All papers are subject to peer-review and are almost always returned to the author for corrections to be made. Authors should be prepared to make changes. Notes and communications are reviewed by the editorial panel and are not normally returned to authors for checking.

We are able to accept typed papers and notes, or even hand-written notes, if necessary. However, it helps enormously to receive manuscripts via E-mail or on floppy disk, in a PC-compatible format that can be read by Microsoft Word 2000. Drawings, graphs, photographs etc may be sent in an electronic form that has been previously agreed with us. In all other cases, we need the originals (which will be returned).

Authors of papers may receive 25 free reprints and can pay for more. All reprints must be ordered on a form provided with the proofs. Reprints of notes are not provided unless specifically requested **at the time of submission**.

The editor is always happy to discuss contributions with authors and will be especially pleased to offer help to anyone writing an article for the first time.

CONTENTS

1: REFEREED PAPERS

A

A response to A. A. Allen's list of notable Cornish Coleoptera. *R. Colin Welch*, 27-28

A new species of Pterophoridae (Lepidoptera) from Sri Lanka: *Hellinsia nuwara* sp. n. *Vasily N. Kovtunovich*, 27-29 & Plate O.

An annotated list of type specimens of Lepidoptera deposited in the collection of the Institute of Zoology, Sofia I. Butterflies (Lep.: Papilionoidea). *Stanislav Abadjiev*, 19-23

B

Butterflies (Hesperioidea, Papilionoidea) on islands in the Aegean archipelago: A correction, additions an aid to identification and a cautionary tale. *Roger L. H. Dennis, John G. Coutsis & Alain Olivier*, 265-268

Butterflies in Hungary, 9-20 July 1999. *Andrew Wakeham-Dawson, Ted Benton and Bernard Watts*, 3-11

C

Cheilosia ranunculi Doczkal (Dip.: Syrphidae) in Britain. *David Gibbs & Colin W. Plant*, 65-68

Chloroclysta truncata Hufn. (Lep.: Geometridae): a remarkable increase in the incidence of f. *Rufescens* Strom. at Dartford. *Brian K. West*, 157

Craspedolepta nebulosa (Zetterstedt) (Hem.: Psyllidae), a psyllid new to Ireland. *J. P. O'Connor*, 189-190

D

Dryocoetes autographus (Ratzeburg) (Col.: Scolytidae) in Surrey, apparently new to south-east England, with a taxonomic note. *A. A. Allen & J. A. Owen*, 121

E

Eurytoma mayri Ashmead (Hym.: Eurytomidae) and *Torymus rubi* (Schrank) (Hym.: Torymidae): Insects new to Ireland. *J. P. O'Connor*, 69-70

G

Grazing and cutting as conservation management tools – the need for a cautious approach, with some examples of rare moths which have been adversely affected. *Paul Waring*, 193-200

H

Hoverflies (Dip.: Syrphidae) with a drinking habit. *Martin C. D. Speight*, 107-113

L

Leptidea reali Reissinger 1989 (Lep.: Pieridae): a butterfly new to Britain and Ireland. *Brian Nelson, Maurice Hughes, Robert Nash and Martin Warren*, 97-101

Lunulation similarities in the genus *Aricia* Reich. (Lep.: Lycaenidae) in Britain, Spain and Switzerland. *Bill Smyllie*, 209-226 & plates M and N.

M

- Mendesia farinella* (Thunb.) (Lep.: Elachistidae): A moth to look for in Britain. *J. D. Bradley*, 141-143.
- Microlepidoptera review of 2000. *J. R. Langmaid & M. R. Young*, 241-254
- Migrant butterflies and the Millennium Atlas. *Richard Fox, Martin Warren, Jim Asher, Gail Jeffcoate, Stephen Jeffcoate and Paul Harding*, 103-112
- Migration of *Vanessa cardui* (L.) (Lep.: Nymphalidae) through Cyprus, March 2001. *Eddie John*, 269-281

P

- Pelomyia occidentalis* Williston (Dip.: Tethinidae) new to Britain and Germany. *A. G. Irwin, J. H. Cole and W. A. Ely*, 153-156
- Peyerimhoffina gracilis* (Schneider, 1851) (Neur.: Chrysopidae): A green lacewing new to Britain. *Bart Donato, Stephen J. Brookes, John A. Pickett and Jim Hardie*, 131-135

R

- Regional variation in the proportion of plain and banded forms of the Riband Wave *Idaea aversata* (L.) (Lep.: Geometridae) in Great Britain. *Roy Leverton*, 145-157

S

- Scaptia fuscula* (Müll.) (Col.: Scaptiidae) in Gloucs.; with notes on this and *S. testacea* Allen. *A. A. Allen*, 1-2

T

- The European status of the UK Biodiversity Action Plan Moths. *M. S. Parsons*, 49-62
- The occurrence of the Juniper Shieldbug *Elasmotethus tristriatus* (Fabr.) (Het.: Acanthosomatidae), in Northumberland and Co. Durham. *Harry T. Eales*, 13-16
- The Psocoptera of the Wallington Estate – a contribution to recording the Northumberland fauna. *Keith N. A. Alexander*, 231-233
- The Striped Lychnis moth *Shargacucullia lychnitis* (Rambur) (Lep.: Noctuidae): A review of its distribution in Buckinghamshire (VC 24) during 2000. *Peter Hall*, 257-260
- The Wall Brown *Lasiommata megera* L. (Lep.: Nymphalidae) in Northumberland, 1976-2000. *H. A. Ellis*, 161-170

2: NOTES

A

- A December record of the Common Quaker *Orthosia cerasi* (Fabr.) (Lep.: Noctuidae) in West Yorkshire. *Paul Talbot*, 17-18
- A further late occurrence of the Mother of Pearl moth *Pleuroptya ruralis* (Scop.) (Lep.: Pyralidae) in the Isle of Wight. *S. A. Knill-Jones*, 83
- A further late record of the Mother of Pearl *Pleuroptya ruralis* (Scop.) (Lep.: Pyralidae). *Jon Clifton & Adrian Wander*, 82
- A further note on the occurrence of *Tachystola acroxantha* (Meyr.) (Lep.: Oecophoridae) and additional Cornish records. *Rob Edmunds & Ron Parfitt*, 192
- A late occurrence of the Mother of Pearl moth *Pleuroptya ruralis* (Scop.) (Lep.: Pyralidae). *Tony Steel*, 2
- A March Humming-bird Hawk-moth *Macroglossum stellatarum* (L.) (Lep.) Sphingidae) in north-east Essex. *Joe Firmin*, 140
- A note on *Oedemera lurida* (Marsham) (Col.: Oedemeridae) in North London (Middlesex). *K. G. V. Smith*, 16
- A purple hairstreak down at ground level. *Richard A. Jones*, 118.
- A recent record of *Anomoia purmunda* (Harris) (Dipt.: Tephritidae) from Scotland. *David Horsfield*, 119-120
- A second sighting of *Sitara muralis* (Forst.) (Col.: Meloidae) at Welling in north-west Kent. *A. A. Allen*, 8
- Acleris kochiella* (Goeze) (Lep.: Tortricidae) new to Norfolk. *Jon Clifton*, 12
- An albino Gatekeeper *Pyronia tithonus britanniae* Verity ab. *albinotica* Goodson (Lep.: Nymphalidae). *Chris Tyler-Smith*, 41
- An exceptionally early Common Quaker *Orthosia cerasi* (Fabr.) (Lep.: Noctuidae) from Devon. *Robert Bogue*, 17
- An old record of *Melandrya barbata* (Fabr.) (Col.: Melandryidae) from North Hampshire. *Brian Levey*, 86
- Another British location for the ant lion *Euroleon nostras* (Geoffroy) (Neur.: Myrmeleontidae). *Colin W. Plant*, 230
- Another Latticed Heath *Chiasmia clathrata* (L.) ab. *obsoletissima* Cockayne (Lep.: Geometridae) at Holme Dunes, Norfolk. *Jon Clifton*, 208
- An undescribed *Diadegma* species (Hym.: Ichneumonidae) reared from both first and second generation larvae of the Barberry Carpet moth *Pareulype berberata* (D. & S.) (Lep.: Geometridae) from Wiltshire. *Paul Waring*, 206-207 & Plate K.
- Arhopalus rusticus* (L.) (Col.: Cerambycidae) in Somerset. *Brian E. Slade*, 25
- Atomaria scutellaris* Motschulsky (Col.: Cryptophagidae) in East Suffolk. *David R. Nash*, 38

B

- Bledius talpa* Gyll. (Col.: Staphylinidae): a postscript. *A. A. Allen*, 187
- British Moth websites *Rob Edmunds*, 178
- Bruchus rufipes* Herbst (Col.: Bruchidae): a warning to users of “Joy”. *A. A. Allen*, 120

C

- Cacyreus marshalli* (Butler) (Lep.: Lycaenidae) in Corsica. *Mark R. Shaw*, 262

- Callistus lunatus* (F.) (Col.: Carabidae) at Box Hill in 1964. *A. A. Allen*, 160
- Chrysoteuchia culmella* (L.) (Lep.: Pyralidae) flight period. *David Manning*, 70
- Clouded-bordered Brindle *Apamea crenata* (Hufn.) (Lep.: Noctuidae). Some unusual dates in East Lancashire. *S. M. Palmer*, 18
- Clouded yellow breeding in urban London. *Richard A. Jones*, 160
- Cosmopterix orichalcea* Stainton (Lep.: Cosmopterigidae), a resident species on the Isle of Rum, Scotland. *K. P. Bland*, 262-263
- Cydia amplana* (Hubner) (Lep.: Tortricidae) in Hampshire. *Richard Dickson*, 120

D

- Dioryctria schuetzeella* Fuchs (Lep.: Pyralidae) in Dorset. *R. R. Cook*, 64
- Dorytomus ictor* (Herbst) (Col.: Curculionidae) widespread in the London area. *Richard A. Jones*, 84-85
- Duponchelia fovealis* Zell. (Lep.: Pyralidae) and other moths new to Hertfordshire during 2001. *Colin W. Plant*, 255-256
- Dusky Sallow *Eremobia ochroleuca* (D. & S.) (Lep.: Noctuidae) in Lancashire and some notes on other species. *S. M. Palmer*, 37-38

E

- Eana incanana* (Steph.) (Lep.: Tortricidae) in Cheshire. *Jon Clifton*, 40
- Early appearance of the Spring Usher *Agriopis leucophaearia* (D. & S.) (Lep.: Geometridae) in north London (Middlesex) in January. *K. G. V. Smith*, 62
- Evergestis extimalis* (Scop.) (Lep.: Pyralidae) in Somerset. *Brian E. Slade*, 39

F

- Fifth update of early emergences of moths at Selborne, Hampshire. *Alasdair Aston*, 29-30
- First UK record of *Adelognathus stelfoxi* Fitton, Gauld & Shaw (Hym.: Ichneumonidae). *Bill Ely*, 140
- Further records of Hoary Footman *Eilema caniola* (Hb.) (Lep.: Arctiidae) in North Wales. *David C. G. Brown*, 17
- Further records of Hoary Footman *Eilema caniola* (Hb.) (Lep.: Arctiidae) on Anglesey. *Graham Jones*, 256

G

- Gastrophysa viridula* Degeer (Col.: Chrysomelidae) new to West Sussex. *Richard A. Jones*, 130
- Gelechia senticetella* Stdgr. (Lep.: Gelechiidae) in Hertfordshire. *Stephen Palmer*, 42

H

- Hazards of butterfly collecting: A military escort will be needed – Oman 1979. *Torben B. Larsen*, 138-139
- Hazards of butterfly collecting: A typical Scandinavian picnic – New Delhi, January 1955. *Torben B. Larsen*, 282-284
- Hazards of butterfly collecting: Airport Hotel, Lagos – Nigeria 1978/80 *Torben B. Larsen*, 175-176
- Hazards of butterfly collecting: *Ornipholidotos larseni* – Nigeria, 1967/69. *Torben B. Larsen*, 80-81

- Hazards of butterfly collecting: round-eye taxi driver, Korea, 1978. *Torben B. Larsen*, 24-25
- Hazards of butterfly collecting: We are going to shoot you, Sir – Benin, Nigeria, 1969. *Torben B. Larsen*, 235-236
- Hypoconera punctatissima* (Roger) (Hym.: Formicidae) re-discovered outdoors in a Northamptonshire garden. *R. Colin Welch*, 207-208

I

- Is the Orange Ladybird *Halysia sedecimguttata* (L.) (Col.: Coccinellidae) a migrant? *Neville L. Birkett*, 34-35

J

- Lang's Short-tailed Blue *Leptotes pirithous* (L.) (Lep.: Lycaenidae) and other butterflies on Madeira Island. *D. Hall & P. J. C. Russell*, 261

L

- Laricobius erichsoni* Rosenhauer (Col.: Derodontidae) from Aberdeenshire. *Arthur W. Ewing*, 85-86
- Larvae of the Scarce Tissue *Rheumaptera cervinalis* (Scop.) (Lep.: Geometridae) at Charlton-on-Otmoor, Oxfordshire. *Paul Waring*, 91-92
- Lepidoptera new to Somerset in 2000. *Martin J. Ellis*, 79
- Lepidoptera new to the Isle of Wight (VC 10) in 2000. *S. A. Knill-Jones*, 43
- Leptidea reali* NOT known from Britain. *David Corke*, 254
- Lipara rufitarsis* Loew (Dip.: Chloropidae) in Kent, with belated records of two other species of Chloropidae. *Laurence Clemons & Malcolm Jennings*, 190
- Little-known entomological literature – 6. *Brian O. C. Gardiner*, 31-34
- Little-known entomological literature – 7. *Brian O. C. Gardiner*, 71-72
- Little-known entomological literature – 8. *Brian O. C. Gardiner*, 102
- Lymexylon navale* L. (Col.: Lymexylidae) in East Suffolk. *David R. Nash*, 26

M

- Meganola albula* (D.& S.) (Lep.: Nolidae) recurs in North Hampshire. *Alasdair Aston*, 42
- Megapenthes lugens* Redt. (Co.: Elateridae) bred from elm: a belated Windsor record, and further notes. *A. A. Allen*, 186
- Migration of Nymphalid butterflies in southern Laos, Indo-China (Lep.: Nymphalinae: Danaeinae). *W. John Tennent*, 177
- More early emergences of moths. *Colin W. Plant*, 63-64
- More insect web sites. *Colin W. Plant*, 179
- More on *Oedemera* spp. (Col.: Oedemeridae). *A. A. Allen*, 130.
- More on the changing voltinism of Hertfordshire's moths. *Colin W. Plant*, 202-203
- Moth trapping at Kingsham, West Sussex, 2000. *Sarah Patton*, 116-117
- Moths on buses. *Tony Steele*, 86

N

- Nemapogon variatella* (Clemens) (Lep.: Tineidae) imported in Spanish mushrooms, and a larval description. *P. M. Costen*, 263-264

- New food-plant for *Leucoptera orobi* Stainton (Lep.: Lyonetiidae) from the Isle of Rum, Scotland. *K. P. Bland*, 263
- Not quite observations of snow fleas *Boreus hyemalis* (L.) (Mecoptera: Boreidae) feeding. *John Bratton*, 184
- Notable Cornish Coleoptera. *A. A. Allen*, 83
- Notes on possible overwintering Red Admirals *Vanessa atalanta* (L.) (Lep.: Nymphalidae) in Cambridge. *C. M. Everett*, 203

O

- Observations of the egg-laying behaviour of the Argent and Sable moth *Rheumaptera hastata* (L.) (Lep.: Geometridae). *Paul Waring*, 143-144
- On the binding of journals and their supplements. *Brian O. C. Gardiner*, 35-37
- Once bitten... *Richard A. Jones*, 152
- Oncomera femorata* (Fabr.) (Col.: Oedemeridae) new to Hertfordshire. *Colin W. Plant*, 230
- Orange-tip *Anthocharis cardamines* (L.) (Lep.: Pieridae) recorded from *Brassica rapa*. *Jamie P. Sutherland*, 200-201

P

- Parasitoid *Meteorus gyrator* (Thunb.) (Hym.: Braconidae: Meteorinae) reared from larva of the White-spotted Pinion moth *Cosmia diffinis* (L.) (Lep.: Noctuidae) in Cambridgeshire. *Paul Waring*, 135-138
- Parasitoid wasp *Dusona terebrator* (Forster) (Hym.: Ichneumonidae: Campopleginae) reared from larva of Marsh Moth *Athetis palustris* (Hb.) in Lincolnshire. *Paul Waring*, 204-206 & Plate J
- Pearl Bordered Fritillary *Boloria euphrosyne* L (Lep.: Nymphalidae): A March Record? *R. C. Denning*, 151
- Phragmatobia fuliginosa* L. (Lep.: Arctiidae): first generation at light and third generation examples in Kent. *B. K. West*, 187
- Postponed emergence in the Orange-tip butterfly *Anthocharis cardamines* (L.) – a footnote. *Harry T. Eales*, 40
- Predation by bird (White-breasted Woodswallow, *Artamus leucorhynchus*) on butterfly (*Papilio* species) in Kuching, Sarawak (Borneo). *W. John Tennent*, 152

R

- Red-necked Footman *Atolmis rubicollis* (L.) (Lep.: Arctiidae) in Lancashire. *Stephen Palmer*, 118-119

S

- Sandhill Rustic *Luperina nickerlii* (Freyer) *gueneei* (Doubl.) (Lep.: Noctuidae): new to Denbighshire (VC 50). *Sam Thomas, Alan Wagstaff & Adrian Wander*, 234-235
- Satin Beauty *Deileptenia ribeata* (Clerck) (Lep.: Geometridae) new to north-east Scotland. *Robert M. Palmer & Cedric W. N. Holmes*, 79
- Scaptia fuscata* Müller and *S. testacea* Allen (Col.: Scaptiidae) in Buckinghamshire. *A. P. Foster*, 233-234
- Seventh update of early emergences of moths at Selborne, Hampshire. *Alasdair Aston*, 181
- Sitaris muralis* (Forst.) (Col.: Meloidae): first modern record for Kent and the London area. *A. A. Allen*, 25-26
- Sixth update on early emergences of moths at Selborne, Hampshire. *Alasdair Aston*, 87-91

Some moth conservation news updates. *Paul Waring*, 121-129.

Sophronia semicostella (Hb.) (Lep.: Gelechiidae) in North Hampshire. *Alasdair Aston*, 170

Sorhagenia janisewskae Riedl (Lep.: Cosmopterigidae) feeding on *Rhamnus catharticus* and new to Lancashire. *Stephen Palmer, Robert M. Palmer & John R. Langmaid*, 81-82

T

The continuing spread of *Nephus quadrimaculatus* (Herbst)(Col.: Coccinellidae). *C. M. Everett*, 233

The status of Hoary Footman *Eilema caniola* (Hb.) (Lep.: Arctiidae) on Anglesey. *Adrian Wander*, 207

Thera juniperata (L.) (Lep.: Geometridae) in Juniper Valley, Aston Upthorne, Oxfordshire. *Paul Waring*, 78

Thistle Ermine *Myelois circumvoluta* (Geoff.) (Pyrilidae), Blackneck *Lygephila pastinum* (Tr.) (Noctuidae) and Convolvulus Hawk-moth *Agrius convolvuli* (L.) (Sphingidae): three interesting Staffordshire moths (Lepidoptera). *Jan Koryszko*, 281-282

Two immaculate Sand Dart *Agrotis ripae* (Hb.) at the inland site of Calceby Beck Marsh SSSI, Lincolnshire. *Paul Waring*, 113-116.

Two new localities for *Hemicoelus nitidus* (Herbst) (Col.: Anobiidae). *Brian Levey*, 84

Two, possibly new, aberrations of British butterflies. *K. F. Williams*, 39

U

Unseasonable Stag Beetles. *A. A. Allen*, 180

V

Voltinism of Ruby Tiger *Phragmatobia fuliginosa* (L.) (Lep.: Arctiidae) and other macro-moths in the Watford district, Hertfordshire. *C. M. Everett*, 201-202

W

What is happening to the Small Tortoiseshell *Aglais urticae* (L.) (Lep.: Nymphalidae)? *A. A. Allen*, 261-262

White Colon *Sideridis albicolon* (Hb.) (Lep.: Noctuidae): New to Denbighshire (VC 50). *Adrian Wander*, 12

X

Xanthandrus comtus (Diptera, Syrphidae): new to Shetland. *M. G. Pennington*, 38-39

3: SUBSCRIBER NOTICES

Dipteron: A new journal of interest to British entomologists. *Christian F. Kassebeer*, 92
National Gelechhid Lepidoptera Recording Scheme. *Graham Irving*, 229
Publications of the Malloch Society now available. *Geoff Hancock*, 23

4: EDITORIAL NOTES, ANNOUNCEMENTS

Corrigenda. *Editor*, 288

Editorial Comment on the note on Notable Cornish Coleoptera by A. A. Allen. *Colin W. Plant*, 83

5: OBITUARIES

Edward Frank Hancock (1921-2001). *E. G. Hancock*, 171-174

Lt. Col. A. Maitland Emmet MBE, TD, MA, Hon. FRES, FLS. *Basil Harley*, 73-78

6: BOOK REVIEWS

A catalogue of the Irish Chalcidoidea (Hymenoptera) by J. P. O'Connor, R. Nash and Z. Bouček, 96

An atlas of the distribution of the butterflies in Bulgaria by Stanislav P. Abadjiev, 238-239

An introduction to the invertebrates by Janet Moore, 284

Checklist of Lepidoptera recorded from the British Isles. Second edition (revised) by J. D. Bradley, 48

Checklist of the flora and fauna of Wicken Fen by Laurie Forsythe and Basil Harley, 95

De danske graeshopper by Ole Fogh Nielsen, 46-47

Essential entomology: an Order-by-Order introduction by George McGavin, 238

Habitat management for invertebrates by Peter Kirby, 237

Insectorvm sive Minimorum Animalium Theatrvm by George Thomson, 47-48

Irish indoor insects: A popular guide by James P. O'Connor and Patrick Ashe, illustrated by Sean Milne, 47-48

Keeping spiders, insects and other land invertebrates in captivity by Frances Murphy, 237

Ladybirds of Surrey by Roger D. Hawkins, 93

Maggots, murder and men – memoirs and reflections of a forensic entomologist by Zakaria Erzinçlioğlu, 237-238

Moccas: An English deer park edited by Paul T. Harding and Tom Wall, 45-46

Photographic Guide to the Butterflies of Britain & Europe by Tom Tolman 188

Provisional atlas of British hoverflies (Diptera, Syrphidae) by Stuart G. Ball and Roger K. A. Morris, 43-44

Provisional atlas of the aculeate Hymenoptera of Britain and Ireland, Part 3. edited by Robin Edwards, 285-286

The Aurelian legacy: British butterflies and their collectors by Michael A. Salmon, 94

The distribution of the Ephemeroptera in Ireland by Mary Kelly-Quinn and John J. Bracken, 93-94

The flat-footed flies (Diptera: Opetiidae and Platypezidae) of Europe by Peter J. Chandler, 286

The geometrid moths of Europe, volume 1 by Axel Hausmann, 239-240

The Larger moths of Staffordshire by D. W. Emley and R. G. Warren, 287-288

The Microlepidoptera of Wiltshire by Stephen Palmer, 240

The Millennium Atlas of Butterflies in Britain and Ireland by Jim Asher, Martin Warren, Richard Fox, Paul Harding, Gail Jeffcoate & Stephen Jeffcoate, 286-287

The red mason Bee: Taking the sting out of bee-keeping by Christopher O'Toole, 96

The Sesiidae of Europe by Zdeněk Laštůvka & Aleš Laštůvka, 284-285

Variation in British Butterflies by A. S. Harmer. Illustrated by A. D. A. Russwurm, 45

Whip spiders (Chelicerata: Amblypygi): Their biology, morphology and systematics by Peter Weygoldt, 95-96

Milton Keynes: More than just concrete cows by the Milton Keynes natural History Society, 232

Provisional atlas of the longhorn beetles (Coleoptera, Cerambycidae) of Britain by P. F. G. Twinn and P. T. Harding, 92

The birder's bug book by Gilbert Waldbauer, 231

CONTRIBUTORS

Page number entries in **bold** type refer to peer-reviewed papers; entries in ordinary type refer to notes and communications refereed internally by the Editorial Panel. Where an author is not the first named of multiple authors, the page number entry is printed in *italic* type.

Abadjiev, S., 19-23	Dening, R. C., 151
Alexander, K. N. A., 231-233	Dennis, R. L. H., 265-268
Allen, A. A., 1-2 ; 8; 25-26; 83; 120; 130; 160; 180; 186; 187; 261-262	Dickson, R., 120
Asher, J., 103-112	Donato, B., 131-135
Aston, A., 29-30; 42; 87-91; 170; 181	Eales, H. T., 13-16 40
Benton, T., 3-11	Edmunds, R., 178; 192
Birkett, N. L., 34-35	Ellis, H. A., 161-170
Bland, K. P., 262-263; 263	Ellis, M. J., 79
Bogue, R., 17	Ely, W. A., 140; 153-156
Bradley, J. D., 141-143	Everett, C. M., 201-202; 203; 233
Bratton, J., 184	Ewing, A. E., 85-86
Brooks, S. J., 131-135	Firmin, J., 140
Brown, D. C. G., 17	Foster, A. P., 233-234
Clemons, L., 190	Fox, R., 103-112
Clifton, J., 12; 40; 82; 208	Gardiner, B. O. C., 31-34; 35-37; 71-72; 102
Cole, J. H., 153-156	Gibbs, D., 65-68
Cook, R. R., 64	Hall, D., 261
Corke, D., 254	Hall, P., 257-260
Costen, P., 263-264	Hancock, E. G., 23; 171-174
Coutsis, J. G., 265-268	Hardie, J., 131-135
	Harding, P., 103-112

- Harley, B., 73-78
 Holmes, C. W. N., 79
 Horsfield, D., 119-120
 Hughes, M., **97-101**
 Irving, G., 229
 Irwin, A. G., **153-156**
 Jeffcoate, G., **103-112**
 Jeffcoate, S., **103-112**
 Jennings, M., 190
 John, E., **269-281**
 Jones, G., 256
 Jones, R. A., 84-85; 118; 130; 152; 160
 Kassebeer, C. F., 92
 Knill-Jones, S. A., 43; 83
 Koryszko, J., 281-282
 Kovtunovich, V. N., **27 - 29**
 Langmaid, J. R., 81-82; **241-254**
 Larsen, T. B., 24-25; 80-81; 175-176; 138-139; 235-236; 282-284
 Leverton, R., **145-151**
 Levey, B., 84; 86
 Manning, D., 70
 Nash, D. R., 26; 38
 Nash, R., **97-101**
 Nelson, B., **97-101**
 O'Connor, J. P., **69-70; 189-190**
 Olivier, A., **265-268**
 Parfitt, R., 192
 Palmer, R. M., 79; 81-82
 Palmer, S. M., 18; 37-38; 42; 81-82; 118-119
 Parsons, M. S., **49-62**
 Patton, S., 116-117
 Pennington, M. G., 38-39
 Pickett, J. A., **131-135**
 Plant, C. W., 63-64; **65-68**; 83; 179; 230; 255-256; 202-203; 230
 Russell, P. J. C., 261
 Shaw, M. R., 262
 Slade, B. E., 25; 39
 Smith, K. G. V., 16; 62
 Smyllie, B., **209-226 & Plates M & N**
 Steel, T., 2; 86
 Sutherland, J. P., 200-201
 Talbot, P., 17-18
 Tennent, W. J., 152; 177
 Thomas, S., 234-235
 Tyler-Smith, C., 41
 Wagstaff, A., 234-235
 Wakeham-Dawson, A., **3-11**
 Wander, A., 12; 82; 207; 234-235
 Waring, P., 78; 91-92; 113-116; 121-129; 135-138; 143-144; **193-200**; 204-206 & Plate J; 206-207 & Plate K
 Warren, M., **97-101; 103-112**
 Watts, B., **3-11**
 Welch, R. C., **27-28**; 207-208
 West, B. K., **157** 187
 Williams, K. F., 39
 Young, M. R., **241-254**

SPECIAL INDEX

Compiled by David Wilson

Newly described taxa are indexed in **bold type**.

Taxa new to Britain or newly recognised as British are denoted by an asterisk.

LEPIDOPTERA	Page		Page
abietaria Eupithecia	255	antealcetas Everes	10
abietella Dioryctria	182	anthyllidella Aproaerema	249
abscisana Lobesia	182	antiopa Aglais	9, 108, 109
absinthiata Eupithecia	29	Arctiidae	17, 54, 59, 118, 187, 201, 207, 256
absinthii Cucullia	116	arcuella Olethreutes	251
acanthadactyla Amblyptilia	116	arenella Agonopterix	248
aceris Acronicta	30	areola Xylocampa	64
achatana Ancyliis	89	argentella Elachista	141, 247
acroxantha Tachystola	192, 247	argentinae Infurcitinea	244
acuminatella Scrobipalpa	249	argentula Coleophora	247
acutellus Sclerocona	253	argiades Cupido	111
Adelidae	244	argiades Everes	4, 10
admetus Agrodiaetus	3	argus Plebejus	10
adspersella Coleophora	247	Argynnini	20
advenella Trachycera	183, 253	argyrognomon Plebejus	3
aegeria Pararge	9	argyropeza Ectoedemia	243
aescularia Alsophila	64	Aricia	209
aestivaria Hemitea	90	aridella Pediasia	252
aethiops Erebia	9	arion Maculinea	3, 8, 9, 10, 194
affinis Cosmia	135	aristaeus maderensis Hipparchia	261
agestis Aricia	209-226	armigera Heliothis	117
aglaja Argynnis	9, 10	artaxerxes allous Aricia	209-226
Agrodiaetus	266	artaxerxes Aricia	209-226
albicapitella Paraswammerdamia	246	artaxerxes morronensis Aricia	210-226
albicolon Sideridis	12	artaxerxes salmacis Aricia	209-226
albidella Biselachista	247	artemisiocella Coleophora	247
albimacula Hadenia	51, 55, 59, 61	artemisiella Scrobipalpa	249
albistria Argyresthia	245	aruncella Micropterix	242
albitarsella Coleophora	246	ashworthii Xestia	55, 59
albuginana Pammene	251	assimilella Stigmella	243
albula Meganola	42	atalanta Vanessa	106, 203, 267, 273, 281
albulata Asthena	30	athalia Mellicta	9
alchemillata Perizoma	91	atra Acanthopsyche	244
alchimiella Caloptilia	42	atricollis Ectoedemia	243
alciphron Lycaena	10	atricomella Elachista	247
alcon Maculinea	4, 10	atriplicella Scrobipalpa	90
alcon sebastos Maculinea	4	aucupariae Stigmella	256
alcyonipennella Coleophora	246	aurata Pyrausta	90
alexis Glaucopsyche	4	aurelia Mellicta	3, 4, 10
alfaciensis Colias	4, 11, 111	aurella Stigmella	243
alnetella Stigmella	243	aurita Pammene	183, 251
alpicola Xestia	55, 59	Autostichidae	229
alpium Moma	56, 60	autumnitella Acrolepia	246
alsinella Caryocolum	249	avellanella Semioscopis	248
alsines Hoplodrina	88	aversata Idaea	88, 145, 149
alstromeriana Agonopterix	248	azaleella Caloptilia	244, 255
alticolella Coleophora	247	badiana Ancyliis	183, 251
ambigualis Scoparia	29, 252	baja Xestia	181
amplana Cydia	120	bajularia Comibaena	89
anceps Apamea	30	basistrigalis Scoparia	87
ancipitella Scoparia	252	Batrachedridae	229
andrenaeformis Synanthedon	74	beirnei Trifurcula	241, 243
angustana Eupoecilia	250	bellargus Lysandra	194
angustea Eudonia	252	bennetii Agdistis	116
angustella Nephopterix	116	berberata Pareulype	54, 58, 91, 121, 205, 206
angustiorana Ditula	87	bergmanniana Acleris	90
annulatella Rhigognostis	246	betularia Biston	148
anomala Stilbia	207	betulella Coleophora	246
anomalella Stigmella	243	betulicola Stigmella	243

bicolorata Hecatera	89	bipunctaria Scotopteryx	51, 53, 58
anthyllidella Aproaerema	249	bipunctidactyla Stenoptilia	116
antiopa Aglais	9, 108, 109	biselata Idaea	90
Arctiidae	17, 54, 59, 118, 187, 201, 207, 256	bistriatella Apomyelois	253
arcuella Olethreutes	251	bistriga Cryptoblabes	253
arenella Agonopterix	248	blancardella Phyllonorycter	254
areola Xylocampa	64	blandella Caryocolum	249
argentella Elachista	141, 247	Blastobasidae	229, 249
argentimaculella Infurcitinea	244	boeticus Lampides	111, 261, 267
argentula Coleophora	247	bombycina Polia	52, 55, 59
argiades Cupido	111	bonnetella Argyresthia	245
argiades Everes	4, 10	borelii Gortyna	199
argus Plebejus	10	boscana Acleris	12, 250
Argynniini	20	brassicacae Pieris	273
argyrognomon Plebejus	3	britanniodactyla Capperia	253
argyropeza Ectoedemia	243	britomartis Mellicta	3, 4, 9, 10
Aricia	209	brockeella Argyresthia	245
aridella Pediasia	252	brunnea Diarsia	181
arion Maculinea	3, 8, 9, 10, 194	bryonae Pieris	9
aristaeus maderensis Hipparchia	261	Bucculatricidae	244
armigera Heliothis	117	c-album Polygonia	9, 151, 167
artaxerxes allous Aricia	209-226	caja Arctia	181
artaxerxes Aricia	209-226	caliginosa Acosmetia	51, 55, 59, 61, 123
artaxerxes morronensis Aricia	210-226	calthella Micropterix	242
artaxerxes salmactis Aricia	209-226	campoliliana Eucosma	251
artemisicolella Coleophora	247	cana Eucosma	89, 251
artemisiella Scrobipalpa	249	caniola Eilema	17, 207, 256
aruncella Micropterix	242	cantiata Idaea	124
ashworthii Xestia	55, 59	capreana Apotomis	181
assimilella Stigmella	243	carbonaria Macaria	51, 54, 59
atalanta Vanessa	106, 203, 267, 273, 281	cardamines Anthocharis	40, 167, 200
athalia Mellicta	9	cardui Vanessa	106, 107, 203, 269, 281
atra Acanthopsyche	244	carphodactyla Euleioptilus	254
atricollis Ectoedemia	243	carpinella Parornix	244
atricomella Elachista	247	carpinella Stigmella	243
atriplicella Scrobipalpa	90	centaureata Eupithecia	29
aucupariae Stigmella	256	cerasana Pandemis	88
aurata Pyrausta	90	cerasi Orthosia	17
aurelia Mellicta	3, 4, 10	ceratoniae Apomyelois	253
aurella Stigmella	243	cervinalis Rheumaptera	91
aurita Pammene	183, 251	chaerophyllella Epermenia	252
Autostichidae	229	Charaxes	138
autumnitella Acrolepia	246	chenopodiata Scotopteryx	181
avellanella Semioscopis	248	choragella Morophaga	182
aversata Idaea	88, 145, 149	Choreutidae	245
azaleella Caloptilia	244, 255	chrysidiformis Pyropteron	49, 53, 58
badiana Ancyliis	183, 251	chrysippus Danaus	177, 273
baja Xestia	181	chrysis Diachrysia	29
bajularia Comibaena	89	chrysoprasaria Hemistola	89
basistrigalis Scoparia	87	chrysotheme Colias	4
Batrachedridae	229	cinerosella Euzophera	116
beirnei Trifurcula	241, 243	ciniflonella Exaeretia	248
bellargus Lysandra	194	circumvoluta Myelois	30, 38, 281, 282
bennetii Agdistis	116	cirsiana Epiblema	251
berberata Pareulype	54, 58, 91, 121, 205, 206	citrana Thiodia	251
bergmanniana Accleris	90	citri Prays	241, 246*
betularia Biston	148	clathrata ab. obsoletissima Chiasmia	208
betulella Coleophora	246	clathrata alboguttata Chiasmia	12
betulicola Stigmella	243	clathrata Chiasmia	12
bicolorata Hecatera	89	clathrata Semiothisa	235
bicostella Pleurota	247	clavipalpis Paradrina	2
bifasciana Piniphila	88	clavis Agrotis	87
bifida Furcula	30	clematella Nemapogon	42
binaevella Phycitodes	89	clorana Earias	115
binaria Watsonalla	88	cnicana Aethes	90, 250

Coenonymphini	19	echiella Mendesia	141
Coleophoridae	246	Elachistidae	141, 247
Colias	4	eleochariella Biselachista	247
comes Noctua	90	elinguaria Crocallis	181
comma Hesperia	194	elpenor Deilephila	29, 118
comma Mythimna	30	elutella Ephestia	253
communana Cnephasia	29	emargana Acleris	250
comparella Phyllonorycter	79, 245	emortualis Trisateles	56, 60
complanata Eilema	181	empetrella Scythris	250
compta Hadena	29, 117	Epermeniidae	252
comptana Ancylys	251	ephemerella Acentria	90
confusa Macdunnoughia	117	epilobiella Mompha	249
conjugella Argyresthia	245	epomidion Apamea	90
consimilana Clepsia	88	erate Colias	10
consortella Cosmiotes	247	Erebiini	20
contaminella Pediasia	183	ergane Artogeia	9
conturbatella Mompha	75	ericinella Aristotelia	248
convolvuli Agrius	281	Eriocraniidae	243
cornesi Eresiomera	81	erota Vindula	177
coronata Phlyctaenia	182	Ethmiidae	248
corylana Pandemis	183	etrida Colotis	283
coryli Phyllonorycter	245	euipe Colotis	283
corylifoliella Phyllonorycter	245	euphrosyne Boloria	151
Cosmopterigidae	81, 229, 249, 262	exigua Spodoptera	117
costalis Hypsopygia	88	exsoleta Xylena	56, 60
costipunctana Epiblema	251	extimalis Evergestis	39, 253
craccae Lygephila	51, 56, 60, 61	fabriciana Anthophila	30, 245
cramera Aricia	212-226	fagella Diurnea	248
crataegella Scythropia	183	falsella Catoptria	182, 252
crenata Apamea	18	farinalis Pyralis	182
crenata combusta Apamea	18	farinella Mendesia	141
crepusculella Pseudopostega	244	fasciaria Hylaea	91
cribraria Cossinia	52, 54, 59	fasciuncula Oligia	88
croceago Jodia	51, 56, 60, 61	ferrago Mythimna	90
croceus Colias	4, 78, 103, 160, 273, 281	ferrugalis Udea	118
crocicapitella Monopis	244	festaliella Schreckensteinia	252
cucullatella Nola	90	filicivora Psychoides	244
cucullina Ptilodon	90	filipendulae Zygaena	194
culmella Chrysoteuchia	2, 29, 70	fimbriata Noctua	90
cupriacella Nemophora	244	finitimella Parornix	241, 244
cydoniella Phyllonorycter	254	firmata Thera	182
cytisella Monochroa	248	flammealis Endotricha	89
Danainae	176	flavicincta Polymixis	86
daplidice Pontia	111	flavidorsana Dichrorampha	87
daucella Depressaria	248, 256	flavofasciata Perizoma	87
dealbana Gypsonoma	181	flexula Laspeyria	181
decoloratus Everes	7	florella Catopsilia	261
decorella Carpatolechia	248	foenella Epiblema	182
dentella Ypsolopha	183	follicularis Coleophora	246
denticulella Callisto	245	formosanus Lozotaeniodes	181
deviella Coleophora	247	forsskaleana Acleris	250
dia Clossiana	10	forsterana Lozotaenia	88
didyma Melitaea	10	fovealis Duponchelia	43, 253, 255, 256
didyma Mellicta	4	francillana Aethes	250
diffinis Cosmia	52, 55, 60, 61, 125, 135, 136	fugitivella Carpatolechia	248
dilectella Argyresthia	245	fuliginaria Parascotia	182
dilutaria Idaea	51, 53, 58, 61, 195	fuliginosa Phragmatobia	181, 187, 201, 202
dilutella Pempeliella	90, 253	fulvata Cidaria	29
dimidiata Idaea	89	funebrana Grapholita	42
dispar Lycaena	10	furcata Hydriomena	182
distinctella Chionodes	248	furfurana Bactra	251
dodecella Exoteleia	248	furuncula Mesoligia	183
domestica Cryphia	182	fuscalis Opsibotys	253
dryas Minois	9	fuscescens Borkhausenia	247
duplaris Ochropacha	88	fusicornis Coleophora	241, 246

fuscus Papilio.....	152	ino Brenthis.....	9
galathea Melanargia.....	9, 194	interjecta caliginosa Noctua.....	183
gallicana Pammene.....	252	io Inachis.....	167
gamma Autographa.....	117	iolas Iolana.....	7
Gegenes.....	266	ippsilon Agrotis.....	2, 119, 207, 255
Gelechiidae.....	42, 170, 229, 248	isertana Zeiraphera.....	88
geniculea Agriphila.....	252	isodactylus Platyptilia.....	253
Geometridae.....	58, 62, 78, 79, 91, 143, 145, 157, 206	issorica Acraea.....	177
germmana Pammene.....	252	iswara Papilio.....	152
gibbosella Psoricoptera.....	248	janiszewskae Sorhagenia.....	81, 249
gigantella Schoenobius.....	252	janthe Noctua.....	183
gilvaria Aspitates.....	52, 54, 59, 61, 195	janthinana Grapholita.....	252
glabratella Argyroresthia.....	245	jasius Charaxes.....	267
glaucinalis Orthopygia.....	181	jota Autographa.....	90
globulariae Adscita.....	196	juniperata Thera.....	78
Glyphipterigidae.....	245	jurassicella Mompha.....	249
gonodactyla Platyptilia.....	253	jurtina Maniola.....	10
Gracillariidae.....	79, 244	kilmunella Elachista.....	247
graeca balcanica Boloria.....	22	kochiella Acleris.....	12
graeca Boloria.....	20	kochiella Acleris.....	250
graminis Cerapteryx.....	137	kochiella Acleris.....	12
griseana Zeiraphera.....	42	kuwayamai Hellinsia.....	227
grisella Achroia.....	182	lacteana Bactra.....	241, 251
griseola Eilema.....	181	lactearia Jodis.....	89
grossulariata Abraxas.....	183	lacustrata Dipleurina.....	30
gruneri Anthocharis.....	267	laetus Oxyptilus.....	253
gryphipennella Coleophora.....	246	laevigatella Argyroresthia.....	245
hamana Agapeta.....	29	lancealana Bactra.....	251
hamella Crambus.....	79, 252	laodice Argynnis.....	8, 9
hammoniella Heliozela.....	244	larseni Ornipholidotos.....	80
hastata Rheumaptera.....	54, 58, 143	larseni Torbenia.....	81
hauderi Caloptilia.....	244	larseniella Syncopacma.....	249
haworthii Celaena.....	207	Lasiocampidae.....	58
hecabe Eurema.....	177	laterana Acleris.....	183
helenus Papilio.....	152	lathonia Issoria.....	10, 109
Heliconiinae.....	20	lathoniellus Crambus.....	30, 252
Heliozelidae.....	244	lathyrifoliella Leucoptera.....	246, 263
hellerella Blastodacna.....	249	latistria Agriphila.....	184
Hellinsia.....	227	leautieri Lithophane.....	38
heparana Pandemis.....	90, 250	lemnata Cataclysta.....	252
hepariella Zelleria.....	246, 256	Leptidea.....	97
Hesperioidea.....	265	leucophaearia Agriopis.....	62, 63
Hipparchia.....	3	lienigiana Hellinsia (Ovendenia).....	227
hippocastanaria Pachycnemis.....	207	lignea Blastobasis.....	182, 249
hohenwartiana Eucosma.....	182	ligurica punctifera Maculinea.....	3, 9, 10
holmiana Acleris.....	182	limbata Evergestis.....	253
hortulata Eurrhyncha.....	30	linariata Eupithecia.....	30
hospes Proxenus (Athetis).....	204	linearia Cyclophora.....	145
humuli humuli Hepialus.....	29	lineata Siona.....	54, 59, 122, 194, 208
hyale Colias.....	4, 111	lineola Eudonia.....	252
hyemana Acleris.....	250	lineola Thymelicus.....	99
hyperantus Aphantopus.....	9, 10	lineolea Coleophora.....	246
hyperbius Argyrus.....	177	linneella Chrysoclista.....	249
icarus Polyommatus.....	10, 265	Lipteninae.....	80
idas Plebejus.....	7	lithargyrinella Coleophora.....	246
ilicifolia Phyllodesma.....	52, 53, 58	lithoxylea Apamea.....	88
imella Monopis.....	244	litoralis Mythimna.....	12
imitaria Scopula.....	86, 87	littoralis Lobesia.....	29, 251
immaculatella Eulamprotes.....	248	liturata Macaria.....	90
impluviata Hydriomena.....	115	loeflingiana Aleimma.....	89
impura Mythimna.....	90	logiana Acleris.....	250
incanana Eana.....	40	lorkovicii Leptidea.....	97
incarnatana Epiblema.....	251	lorquiniana Acleris.....	250
incertana Cnephassa.....	89, 250	lota Agrochola.....	137
		loti Zygaena.....	53, 58

lucidella Monochroa	248
lucina Hamearis	9, 195
lucipara Euplexia	87, 137
luctuosa Tyta.....	51, 56, 60, 126
lunula Calophasia.....	51, 55, 60
lunulana Grapholita	252
lurideola Eilema.....	90
luscinaepennella Coleophora.....	246
lutarea Paraswammerdamia	246
lutealis Udea	183
Lycaenidae.....	80, 118, 209-226, 261, 262
lychnitis Shargacucullia.....	56, 60, 117, 257
Lyoniidae	246, 263
Lysandra	266
macilenta Agrochola.....	17
Maculinea	4
malinellus Yponomeuta	245
margaritata Campaea	88
margaritella Catoptria	252
maritima Phycitodes	256
marshalli Cacyreus.....	262
matura Thalpophila.....	137, 183
mayrella Coleophora.....	246
megea Lasiommata.....	161
mellinata Eulithis	146
mellonella Galleria.....	89
mercurella Eudonia.....	88
mesomella Cybosia.....	90
micacea Hydraecia.....	183
Micropterigidae.....	242
millieridactyla Stenoptilia.....	253
miniata Miltiochrista.....	183
minima Photedes.....	90
miscella Mompha.....	249
mnemosyne Parnassius	7
molliculana Cochylis	250
Momphidae	229, 249
monacha Lymantria	183
moneta Polychrisia.....	182
monoglypha Apamea	29
montensis Aricia.....	212-226
morpheus Caradrina.....	204
morpheus Heteropterous.....	7, 24
morsei Leptidea	6
morsei major Leptidea	6
murinata Minoa.....	54, 58
murinella Scrobipalpa.....	249
musculosa Oria	51, 56, 60, 61
Myrmeleontidae.....	230
myrmidone Colias.....	6
myrtillana Rhopobota	251
mythimna sp.	137
naevana Rhopobota.....	182
napi Pieris	9
nausithous Maculinea	6, 7
nebulosa Polia.....	90
Neolysandra	266
nephelus Papilio.....	152
Nepticulidae.....	79, 243
neustria Malacosoma	183
nickerlii gueneei Luperina	234
nitentella Scrobipalpa	248
noctuella Nomophila.....	2, 117, 118, 253, 281
Noctuidae.....	12, 17, 18, 37, 54, 59, 135, 234, 257, 281

Nolidae.....	42
nostrodamus Gegenes	267
notata Macaria	87
nubiferana Hedya.....	88, 251
nupta Catocala	38
nuwara Hellinsia	227
nylandriella Stimella.....	79, 243, 256
Nymphalidae.....	41, 151, 161, 203, 261, 269
Nymphalinae.....	176
obliquella Stigmella	243
obsценella Coleophora.....	247
obscurana Pammene	251
obstipata Orthonama.....	117, 255
occulta Eurois	117
ocellana Spilonota.....	89
ocellata Smerinthus.....	88, 118
ochrata Idaea.....	51, 53, 58
ochroleuca Eremobia	37
ochroleucana Hedya.....	87, 251
ocularis octogesimea Tethea.....	87
Oecophoridae.....	192, 247
oedippus Coenonympha.....	19
oedippus magnocellata Coenonympha	19
oleracea Lacanobia	137
oliviella Esperia	247
oo Dicycla.....	51, 56, 60, 61
oporana Archips.....	241, 250
Opostegidae	244
oppressana Gypsonoma	182
or or Tethea.....	182
orana Adoxophyes	250
orbona Noctua.....	54, 59
orichalcea Cosmopterix	249, 262
ornatipennella Coleophora.....	52
orobi Leucoptera.....	263
osiris Cupido	3
osseola Hydraecia	51, 55, 60, 61
osteodactylus Hellinsia	254
padella Yponomeuta	245
paleana Aphelia	250
pales Boloria	20
pales rilaensis Boloria.....	20
pallens Mythimna	30
pallida Eudonia	252
pallidactyla Platyptilia	182
pallidata Evergestis.....	182, 253
pallorella Agonoptyx	256
pallustris Athetis	51, 55, 60, 61, 113, 128, 204, 205
palpella Aplota.....	247
pandrose ambicolorata Erebia.....	20
pandrose ambicolorata, Erebia.....	20
paphia Argynnis.....	9
papilionaria Geometra	181
Papilionoidea	19, 265
pappiferella Coleophora.....	241, 247
paradoxa Stigmella	243
parasitella Ephestia	253
paripennella Coleophora.....	246
pascuella Crambus	182
pasiuana Cnephasia.....	42
pastinum Lygephila	281, 282
pectinataria Colostygia	202, 203
peltigera Heliiothis.....	117, 119
pendularia Cyclophora.....	49, 53, 58

pentadactyla Pterophorus.....	88
penziana Eana.....	250
peribenanderi Coleophora.....	246
perlella Crambus.....	87, 252
perlucidalis Phlyctaenia.....	253
perplexa Hadenia.....	194
persicariae Melanchra.....	87
Pieridae.....	97
pilosaria Phigalia.....	63
pinella Catoptria.....	182
pinguinalis Aglossa.....	183
pinguis Euzophera.....	88
pinariella Ocnerostoma.....	246
pirithous Leptotes.....	261, 267
pisi Melanchra.....	88
plagicolella Stigmella.....	243
platanoidella Phyllonorycter.....	43, 245
plebejana Crocidosema.....	251
plexippus Danaus.....	110, 261
ploetzi Spialia.....	176
plumbella Yponomeuta.....	183
podana Archips.....	89
polychloros Aglais.....	111
polychloros Nymphalis.....	262
polychromella Syncopacma.....	249
polyommata Trichopteryx.....	54, 59
Polyommatus.....	266
polytes Papilio.....	152
pomonella Cydia.....	87
populi Limenitis.....	9
populi Poecilocampa.....	63, 64
porcellus Deilephila.....	87, 118
porphyra Eudemis.....	251
porphyrea Lycophotia.....	182
postvittana Epiphyas.....	250
potatoria Euthrix.....	182
poterii f. serrella Stigmella.....	243
praelatella Lampronia.....	244
prasina Anaplectoides.....	30
prasinana britannica Pseudoips.....	29
proboscidalis Hypena.....	88
procellata Melanthia.....	88
Prodoxidae.....	244
promissa Catocala.....	56, 60
pronuba Noctua.....	64, 88
propinquella Mompha.....	249
pruinana Hedyia.....	29
prunalis Udea.....	89, 253
prunata Eulithis.....	89
Pseudochazara.....	3
psi Acronicta.....	89
Psychidae.....	244
Pterophoridae.....	227, 253
pudorina Mythimna.....	183
pulchellata pulchellata Eupithecia.....	87
pulchrina Autographa.....	29
pumilio Geigenes.....	267
punctaria Cyclophora.....	86
pyralella Scoparia.....	29
pyraliata Eulithis.....	89
Pyralidae.....	2, 39, 64, 70, 79, 82, 83, 252, 255, 281
pyralina Cosmia.....	137
pyrina Zeugera.....	38, 86, 182
pyritoides Habrosyne.....	89
quadrimaculana Endothenia.....	251
quadrimaculella Bohemannia.....	243
quadripuncta Oegoconia.....	30
quercinaria Ennomos.....	183
quercus Neozephyrus.....	118
quinquella Ectoedemia.....	243, 256
ramella Epinotia.....	183
rapae Pieris.....	280
raschkiella Mompha.....	249
ratzeburgiana Zeiraphera.....	251
reali Leptidea.....	97-101, 254 *
rebeli Maculinea.....	4
rectangulata Chloroclystis.....	30
remissa Apamea.....	90
repandata Conobathra.....	183
repandata repandata Alcis.....	87
resplendella Heliozela.....	244
reticulata Eustroma.....	53
reticulata Heliophobus.....	52, 55, 58, 59
rhamni Gonepteryx.....	39
rhodopensis Boloria.....	21
rhomboidaria Peribatodes.....	202, 203, 288
rhomboidea Xestia.....	52
rhomboidea Xestia.....	55, 59
ribeata Deileptenia.....	79
ripae Agrotis.....	12, 113, 129
rivularis Neptis.....	3
roborana Epiblema.....	30, 251
roborella Stigmella.....	243
roborella Phycita.....	91
rosaeolana Epiblema.....	88
rosana Archips.....	91
rostralis Hypena.....	52, 56, 60, 86
rubi Callophrys.....	39
rubricollis Atolmis.....	118
rubricollis Eilema.....	255
rufescens Helcystogramma.....	183
rufifasciata Gymnoscelis.....	207
rufimitrella Adela.....	244
rufipennella Caloptilia.....	43, 244
rugosana Phtheochroa.....	250
rupicola Cochylidia.....	250
ruralis Pleuroptya.....	2, 82, 83, 90, 253
rusticata Idaea.....	86
sacraria Rhodometra.....	117, 119, 281
sagittata Perizoma.....	198
salicis Stigmella.....	243
salicorniae Coleophora.....	241, 247
salinella Scrobipalpa.....	248
sambucaria Ourapteryx.....	90
samiatella Stigmella.....	79, 243
sappho Neptis.....	5, 7
sarcitrella Endrosis.....	247
saturatella Coleophora.....	246
Satyrinae.....	3, 19
saucia Peridroma.....	281
saxicola Phycitodes.....	253
saxicolella Coleophora.....	247
saxifragae Kessleria.....	245
scabrella Ypsolopha.....	184
schmidtellus Acompsia.....	249
schoenicolella Glyphipterix.....	245
Schreckensteiniidae.....	252
schuetzeella Dioryctria.....	64, 253
schumacherana Olindia.....	30, 251

schwarziellus Nematopogon	244	sylvata Hydrelia	54, 58
scolopacina Apamea	183	sylvella Ypsolopha	246
scopariella Agonopterix	248	sylvestris Thymelicus	168
Scythrididae	229, 250	syringaria Apeira	90
sedella Yponomeuta	245	taenialis Schrankia	56, 60
sehestediana Prochoreutis	245	taeniipennella Coleophora	247
selasella Agriphila	184, 252	tages Erynnis	9, 10
selene Clossiana	9	tamesis Coleophora	247
semele Hipparchia	4	tarsipennalis Zanclognatha	88
semiargus Cyaniris	10	telamon Sericinus	24
semicostella Sophronia	170	telejus Maculinea	5, 7, 8, 9, 10
semifasciana Apotomis	251	tephradactyla Euleioptilus	254
sentictella Gelechia	42, 248	terminella Ethmia	248
septembrella Ectoedemia	243	tersata Horisme	29
sequana Dichrorampha	252	tetragonella Monochroa	241, 248
seriata Idaea	87	thersites Polyommatus	265
sericealis Rivula	89, 201, 202	thoracella Bucculatrix	244
serratella Coleophora	246	tiliae Mimas	118
sexguttella Chrysoesthia	248	Tineidae	244, 263
similella Denisia	247	titania Clossiana	10
similis Euproctis	91	tithonus britanniae Pyronia, ab albinotica	41
simpliciata Eupithecia	89	tityus Hemaris	51, 54, 59
sinapis Leptidea	6, 97-101	tolistus Maculinea	4
smaragdaria Thetidia	51, 53, 58, 196	Tortricidae	12, 40, 120, 250
smeathmanniana Aethes	250	transversata britannica Philereme	183
sobrina Protolampra	55, 59	trapezina Cosmia	137, 181
solandriana Epinotia	120	triangulum Xestia	88
sorbi Stigmella	243	tricolor Coleophora	52, 53, 58
sordens Apamea	30	tridactyla Merrifieldia	116
sororculana Apotomis	251	tridens Acronicta	88
sparmannella Eriocrania	243	trifasciata Argyresthia	245
spartiella Anarsia	249	trifolii Zygaena	194
spectrana Clepsia	90, 250	trifolii Coleophora	246
Sphingidae	54, 59, 140, 281	trifolii Discestra	89
spinicolella Phyllonorycter	245	trigeminata Idaea	30
splendana Cydia	183	trimaculella Stigmella	243
sponsa Catocala	56, 60	tringipennella Aspilapteryx	244
stabilella Cosmiotes	247	tripunctaria Eupithecia	29
stagnata Nymphula	252	triseriatella Elachista	247
statice Adscita	195, 196	tristalis Paracolax	51, 56, 60
stellatarum Macroglossum	140, 281	tristella Agriphila	182, 252
stephansiana Cnephassa	40, 89	truncata Chloroclysta	157
sternipennella Coleophora	247	truncicolella Eudonia	89, 252
stigmatella Caloptilia	244	turbidana Epiblema	251
straminata Idaea	145	turca Mythimna	56, 60
straminea Cochylimorpha	250	tyche Cirrochroa	177
straminella Agriphila	89	uddmanniana Epiblema	88
striana Celypha	89	uliginosellus Crambus	252
striatella Isophrictis	248	ultimella Depressaria	248
strigilata Pechipogo	56, 60	umbellana Agonopterix	248
strigulatella Phyllonorycter	245	umbratica Cucullia	29
suavella Trachycera	182	unangulata Euphyia	183
subalbidella Elachista	247	unanimis Apamea	88
subargentella Mendesia	141	undulata Rheumaptera	181
subbistrigella Mompha	249	unionalis Palpita	82
subdivisella Mompha	249	unipuncta Mythimna	82, 117
subfusca Scoparia	89	unipunctella Phyllocnistis	241, 245
sublustis Apamea	89	unitella Batia	90
subocellana Epinotia	251	urella Ochsenheimeria	246
subocellea Thiotricha	249	urticae Aglais	261
succedana Cydia	252	vacculella Ochsenheimeria	246
succenturiata Eupithecia	181	variata Nemapogon	263
sulphurella Esperia	30, 247	variegana Acleris	91, 250
svenssoni Stigmella	243	venata Ochloides	167
swammerdamella Nematopogon	87	venosata Eupithecia	194

versicolor Oligia	29
vespertina Epione	54, 59
vestigialis Agrotis	12
vetulata Philereme	90
viciae argyllensis Zygaena	196
viciae Zygaena	53, 58
vicrama Pseudophilotes	9
viminalis Brachylochia	137, 181
Vindula	176
vinula Cerura	30
virgaureae Lycaena	9, 10
viridana Tortrix	88
vitellina Mythimna	82
vitrata Maruca	253
vulgella Teleiodes	248
xanthographa Xestia	137
xanthomista Polymixis	56, 60
xerophylla Maculinea	4, 10
xylostean Archips	89
xylostella Plutella	117, 118, 246
Yponomeutidae	245
zoegana Agapeta	182, 250
zonaria Lycia	51, 54, 59, 196
zophodactylus Stenoptilia	241, 254

COLEOPTERA

Anobiidae	84
Apalus	268, 288
Atomaria scutellaris	38
Bledius talpa	187
Bruchidae	120
Bruchus atomarius	120
Bruchus rufipes	120
Callistus lunatus	160
Carabidae	160
Cetonia aurata	152
Chrysomelidae	130
Coccinellidae	34, 233
Cryptophagidae	38
Curculionidae	69, 84
Derodontidae	85
Dorytomus ictor	84
Dorytomus validirostris	84
Elateridae	186
Gastrophysa viridula	130
Halyzia sedecimguttata	34
Hemicoelus fulvicornis	84
Hemicoelus nitidus	84
Laricobius erichsoni	85
Leiodes picea	83
Lucanus cervus	152, 180
Megapenthes lugens	186
Melandrya barbata	86
Melandryidae	86
Meloidae	268
Nephus quadrimaculatus	233
Oedemera lurida	16
Oedemera nobilis	130
Oedemeridae	16, 130, 230
Oedemeridae lurida	130
Oedemera nobilis	16
Oncomera femorata	230
Plusiotis	152
Psammobius asper	28
Scraptia dubia	1

Scraptia ferruginea	1
Scraptia fuscula	1, 233
Scraptia testacea	1, 233
Scraptiidae	1, 233
Sitaris muralis	268
Staphylinidae	186
Stereonychus fraxini	69
Allophus triguttatus	28
Apalus muralis	25
Arhopalus rusticus	25
Calodera riparia	28
Cerambycidae	25
Erichsonius signaticornis	28
Gracilia minuta	28
Leiodes picea	28
Lymexylidae	26
Lymexylon navale	26
Meloidae	25
Nicrophorus interruptus	28
Ochrosis ventralis	28
Olibrus affinis	27
Olibrus particeps	27
Paederus fuscipes	28
Pleurphorus caesus	27
Psammobius	27
Psammobius sulcicollis	28
Ptinus sexpunctatus	28
Sitaris muralis	25
Sitona waterhousei	28

DIPTERA

Agromyza nana	263
Anomia purmunda	119
Cecidomyiidae	69
Cheilosia albitarsis	65-68
Cheilosia ranunculi	65-68
Chloropidae	190, 191
Chlorpsina varleyi	192
Dasineura kiefferiana	189
Eumea linearicornis	137
Lipara lucens	190
Lipara rufitarsis	190
Lipara similis	190
Meliscaeva auricollis	38
Meromyza hispanica	191
Pelomyia coronata	153
Pelomyia occidentalis	153 *
Pelomyia steyskali	153
Pelomyiella	154
Pelomyiella mallochi 154	
Perrisia acrophilae	69
Scaeva selenitica	38
Sphaeromyia fasciatus	140
Syrphidae	38, 65
Syrphus torvus	38
Tephritidae	119
Tethinidae	153, 154
Xanthandrus comtus	38

HEMIPTERA: HETEROPTERA

Acanthosomatidae	13
Elasmotherus tristriatus	13

HEMIPTERA: HOMOPTERA

Craspedolepta nebulosa	189
------------------------------	-----

Neocraspedolepta subpunctata.....189
Psyllidae.....189

HYMENOPTERA: ACULEATA

Anthophora acervorum.....26
Bombus lucorum.....26
Crematogaster.....80
Formicidae.....207
Hypoponera punctatissima.....207
Lasius brunneus.....234

HYMENOPTERA: PARASITICA

Adelognathinae.....140
Adelognathus stelfoxi.....140
Apanteles glomeratus.....71
Braconidae.....135, 190
Campopleginae.....121, 204
Campoplex terebrator.....204, 205
Cynipidae.....69
Diadegma.....206
Diadegma armillatum.....121, 207
Diadegma sp.....121
Diplolepis rosae.....69
Dusona.....204
Dusona terebrator.....204
Eurytoma mayri.....69
Eurytomidae.....69
Ichneumonidae.....121, 140, 204, 206
Meteorinae.....135
Meteorus gyrator.....135, 136
Polemochartus liparae.....190
Torymidae.....69
Torymus rubi.....69

NEUROPTERA

Chrysopa.....131
Chrysoperla.....131, 133
Chrysopidae.....131
Cunctochrysa bellifontensis.....131
Euroleon nostras.....230
Nineta inpunctata.....131
Nothochrysa capitata.....131
Peyerimhoffina gracilis.....131 *
Peyerimhoffina pucida.....133
Tjederina.....132

MEGALOPTERA

Megaloptera.....184

RAPHIDIOPTERA

Raphidioptera.....184

MECOPTERA

Boreidae.....184
Boreus hyemalis.....184
Panorpa.....184

TRICHOPTERA

Phryganea grandis.....140

ODONATA

Orthetrum austeni.....176

ORTHOPTERA

Conocephalidae.....190
Conocephalus dorsalis.....190
Orthoptera.....190

PSOCOPTERA

Amphigerontia bifasciata.....231
Amphigerontia contaminata.....231
Caecilius burmeisteri.....231
Caecilius flavidus.....231
Ectopsocus briggsi.....231
Ectopsocus petersi.....231
Elipsocus abdominalis.....231
Elipsocus hyalinus.....231
Elipsocus pumilus.....231
Graphopsocus cruciatus.....231
Metylophorus nebulosus.....231, 232
Peripsocus alboguttatus.....231, 232
Peripsocus phaeopterus.....231
Philotarsus picicornis.....231
Psococerastis gibbosa.....231, 232
Trichadenotecnum fasciatum.....231, 232
Trichadenotecnum sexpunctatum.....231, 232
Trichadenotecnum variegatum.....231, 232

BIRDS

Alcedo atthis, Kingfisher.....115
Artamus leucorhynchus, White-breasted
Woodswallow.....152
Buteo buteo, Buzzard.....78
Otis tarda, Great Bustard.....10
Tyto alba, Barn Owl.....115
Ciconia nigra, Black Stork.....9

MISCELLANEOUS

Vipera berus, Adder.....195

HECKMAN
B I N D E R Y, I N C.
Bound-To-Please®

AUG 02

N. MANCHESTER, INDIANA 46962

SMITHSONIAN INSTITUTION LIBRARIES



3 9088 00982 5977